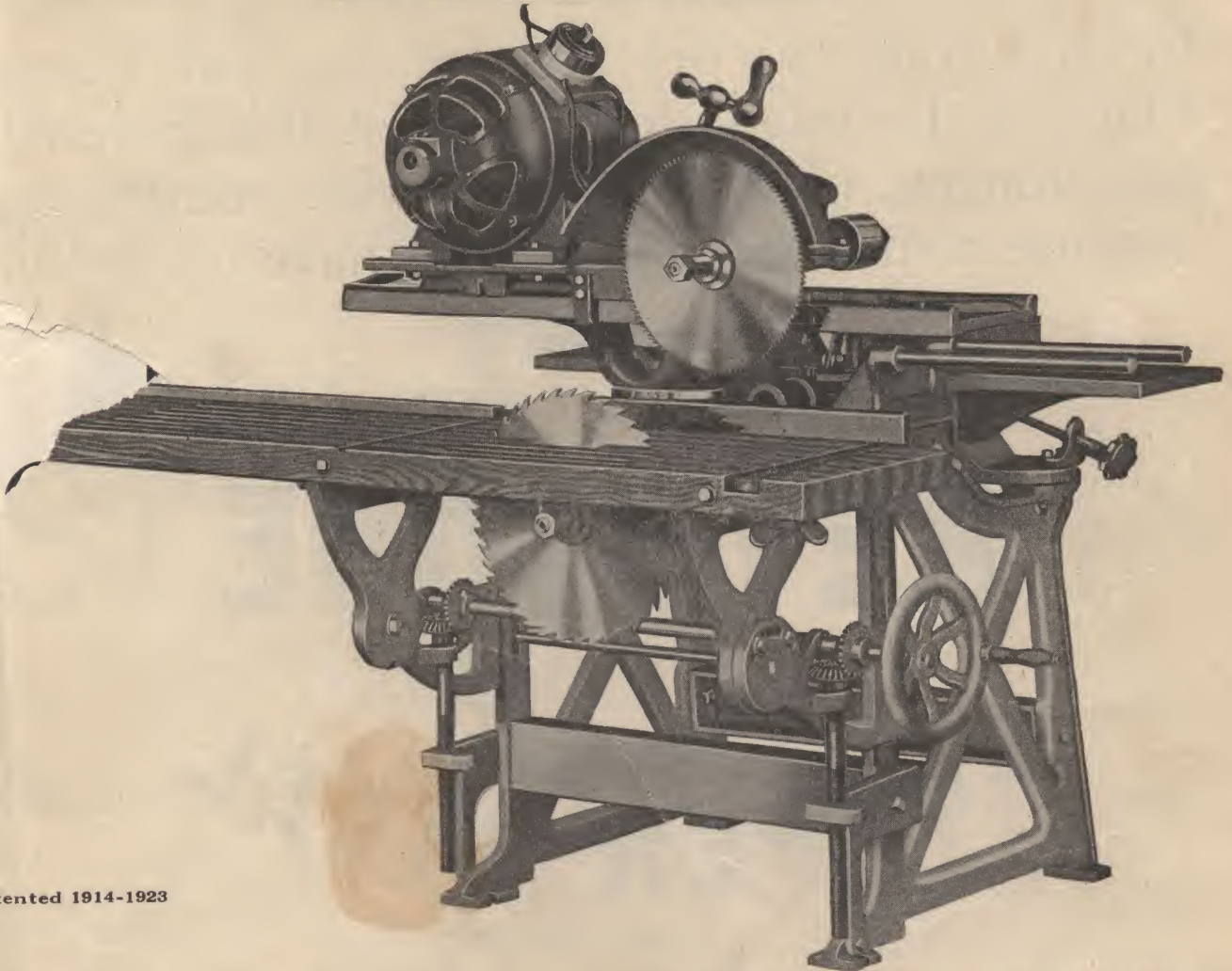


Woodworker

Work The Natural Way

Accurate
Portable

MODEL No. 9-E For Contractors and Builders



Patented 1914-1923

A PORTABLE UNIVERSAL WOODWORKER DESIGNED TO BE TAKEN RIGHT ON THE JOB

Equipped with 2 H. P. Continuous Duty Motor, developing 4½ H. P. Cross-Cutting Capacity, 4 in.; Ripping Capacity, 4 in. Will cut 24" wide by 3" thick, with a 12" saw, 4" with a 14" saw. It will rip 10" wide and 3" thick with 14" saw. Model No. 9E, complete length over all, 5 feet; width over all, without table, 2½ feet (will go through a 2' 6" door by folding the brackets). Weight, complete, 700 pounds; shipping weight complete 1,100 pounds. Weight and size include 6-inch jointer 42 inches long. All machines taken down in four parts by removing 4 bolts; the heaviest part to carry is 175 pounds. Machine set up, ready in 5 minutes.

The Master Woodworker is the Best Labor Saver on the Market

In the Shop or on the Job the Master has no equal—12 machines in one without the extra expense of individual machines. For contractors and lumber yards is one of the greatest factors in cutting down the high cost of Woodworking.

The Master Woodworker appeals to all woodworkers such as cement contractors, builders, carpenters, cabinet makers, pattern makers, wagon makers, factories, etc., and is being used all over the world.

There are Master Woodworkers in use today that have seen over eight years of service without any repairs other than new belts and saws. There is nothing to get out of order, and any man who can file a saw and sharpen a plane can operate the machine.

The simplicity of construction, small number of parts, direct drive of motor from saw spindle, all contribute to make the Master Woodworker the most practical, portable and universal machine on the market.

The overhead saw carried on a slide, pivoted to swing to cut any mitre, and allowing the saw carriage and motor to be drawn back and forth is the new principle used on the Master Woodworker and can be utilized for a variety of purposes without adding a multitude of parts to the machine to enable it to do different kinds of work. All that is necessary is to change the saw or cutting head on the mandrel and swing the slide to suit the work.

The rip saw is always in position ready to operate independently of the overhead swing saw. The heavy underslung arbor also carries different kinds of moulding dadoes—base, sash, brick moulds, panel moulds, screen mouldings, etc., in fact, any shape of mouldings are cut with the greatest speed and absolute perfection.

No matter what you are doing, the lumber always runs in the same direction. Machine can be used in a hallway when necessary and two men work at the same time without interfering with each other. The machine is sturdy, every pound is placed where it will give the maximum result—also is rapidly adjusted from one operation to another. The work is visible at all times. The Master Woodworker is indispensable where speed and power are required. The advantage over the old method of pushing the lumber against the saw is obvious. The Master Woodworker proves itself in a short time.

Folder and Catalogue—on Request.

MANUFACTURED BY

THE MASTER WOODWORKER MANUFACTURING CO.

15th and Congress Streets

DETROIT, MICHIGAN



The Convincing Argument

for Keystone Copper Steel Sheets and Terne Plates is the established fact that this material lasts longest under regular service conditions, because actual *time and weather* have proved it.



The Mark of Superiority

Keystone Copper Steel Black and Galvanized Sheets are highest in quality and rust-resistance, and are adapted to a diversified field of utility. When *Apollo-Keystone* galvanized is used for roofing, siding, spouting, gutters, and sheet metal work, you are assured the maximum of lasting and satisfactory service. The excellence of this alloy is everywhere recognized. Send for our *Testimony* booklet.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago

Cincinnati

Denver

Detroit

New Orleans

New York

Philadelphia

Pittsburgh

St. Louis

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle.



IT is to your interest to demand sheet metal products that represent the highest standards of quality—and which combine good materials with skilled and experienced workmanship.

APOLLO Roofing Products are carefully manufactured in every detail, full weight, strong, durable and trustworthy.



APOLLO-KEYSTONE Galvanized, with a Keystone Copper Steel base, gives maximum wear and resistance to rust.

Black and Galvanized STEEL SHEETS Tin and Terne PLATES

If you require Steel Sheets or Tin Plates of any kind for any purpose, we can supply products which have an established reputation for excellence with particular builders and roofers, and are specially suited to your needs. Sold by leading metal merchants. Write nearest District Sales Office if you have a sheet metal problem—and send for set of revised Weight Cards for Black and Galvanized Sheets.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

MANUFACTURERS OF

Sheet and Tin Mill Products for all purposes—Black Sheets, Galvanized Sheets, Tin and Terne Plates, Special Sheets for Stamping
Corrugated and Formed Roofing and Siding Materials, Electrical Sheets
Wellsville Polished Steel Sheets, Automobile Sheets in all grades, Deep Drawing Sheets, Stove and Range Sheets, Black Plate, Etc.



Glass - the Enduring

"The Best glass" is made in the largest glass melting furnaces in the world, drawn and blown by our improved mechanical process, which gives it greater tensile strength and a higher modulus of rupture than any other window glass, rolled glass, or plate glass.

Our scientific methods of flattening give to "the Best glass" a faultlessly smooth and brilliant surface. It is of uniform thickness and cuts evenly on both sides.

Before being carefully packed in well made boxes "the Best glass" is graded to the highest standard of quality.

"Let in the Sunlight"



INVISIBLE and unnoticed, the glass of your windows presents its enduring surface to the elements; through the changing temperatures of the seasons, it stands guard.

"The Best glass" is uniformly flat, perfectly annealed and has greater tensile strength than any other window glass or plate glass.

Careful homebuilders appreciate the smooth surface and brilliant polish of "the Best glass". It enhances the beauty and value of any house and gives a superlative degree of enduring service.

AMERICAN WINDOW GLASS CO.

GENERAL OFFICES: PITTSBURGH, PA.

BRANCHES IN PRINCIPAL CITIES

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



For Sale—at \$3,000 loss!

A VERY SALEABLE HOME! If you had built it for sale, you'd expect to realize a quick and handsome profit.

Yet when its owner moved to another city he was obliged to take a \$3,000 loss on the sale of the house. Simply because his home, modern and comfortable in all other respects, had an antiquated heating plant.

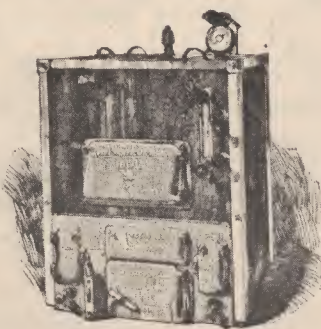
This is a true story of a bank vice-president in an eastern suburb. His business demands a keen sense of investment values, yet he had overlooked an investment in his own home—a modern heating plant—

which would have paid him back many times the initial cost of the plant.

An IDEAL TYPE A BOILER, the finest heating system in the world, could have been installed in that house for less than half the loss he took.

There is a moral to this story, and it's this:

An IDEAL BOILER—whether ARCOLA for smaller homes or the IDEAL TYPE A—will add from three to five times its cost to the selling price of a home; the customer concludes that the rest of the material in the house is the best, too. It increases the rental value, as well.



AMERICAN RADIATOR COMPANY

IDEAL Boilers and AMERICAN Radiators for every heating need

104 West 42nd Street, Dept. T-177
NEW YORK

AMERICAN IDEAL
RADIATORS BOILERS

816 So. Michigan Ave., Dept. T-177
CHICAGO



Tung Lu Bank. Constructed by the J. E. Hayes Engineering Corporation, Tientsin, China—Equipped throughout with Russwin Hardware.

Since 1839

RUSSWIN
DISTINCTIVE
HARDWARE



ARCHITECTS and Building Experts know that Builders' Hardware can make or mar an interior. Durability, sturdiness, freedom from repair worries, are built into every piece of Russwin Hardware.

Plus enduring beauty of design and finish.

Architects have pinned their faith to Russwin Hardware because they appreciate the "Economy of the Best."

We are striving, through our National Campaign of Advertising, to educate and create, among those about to build, a better knowledge of the beauty, desirability and economy of Russwin Hardware.

In order to make the professional path of the Architect an easier one.

"To Russwin-ize is to Economize"

Russell & Erwin Manufacturing Company

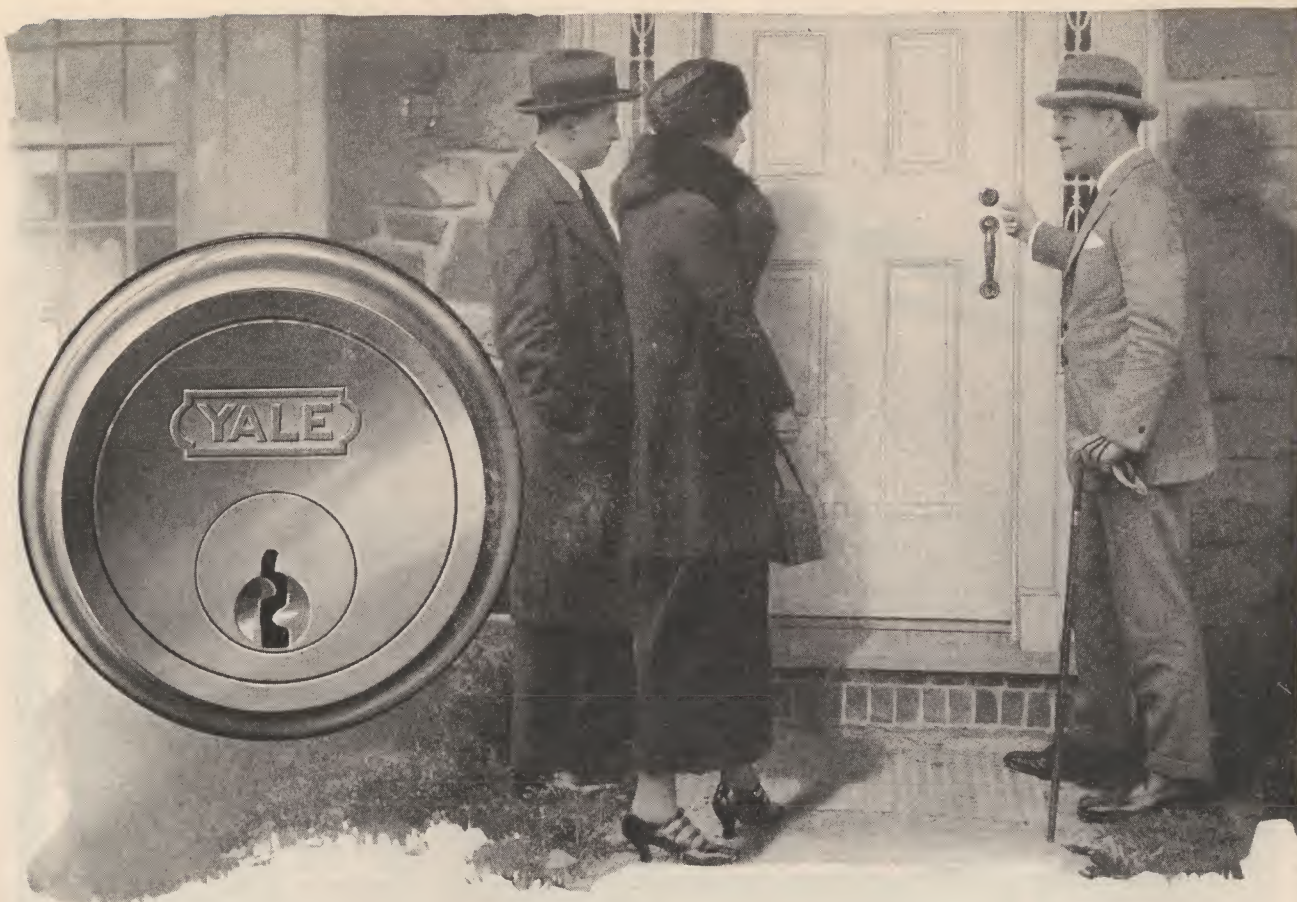
The American Hardware Corporation, Successor

New York
San Francisco

New Britain, Conn.

Chicago
London

Russwin Hardware has been used to give increased beauty and additional security in the Statler Hotels at St. Louis and Detroit; Orlando State Bank, Orlando, Florida; Army and Navy Building, Washington, D. C.; Standard Oil Building, San Francisco; and the Drake Hotel, Chicago. These are only a few of the many Russwin equipped edifices in the United States.



—and the hardware is YALE

Did you ever stop to think what that means?

Any merchant will tell you it is far easier to sell a widely known advertised product. And it is just so much easier to sell the house in which you have used Yale hardware.

Everyone knows Yale hardware. The name YALE is accepted without question as a guarantee of mechanical excellence.

When you point out that name on the locks, it gives the prospective buyer an added degree of confidence in the whole house that may easily mean the closing of a sale.

Yale hardware is furnished in many pleasing designs to suit every class of building. Yale builders' locks with appropriate Yale trim of solid brass and bronze, or heavily plated steel, will last for generations.

For sale by hardware dealers everywhere.

The Yale & Towne Manufacturing Co.

Stamford, Conn., U. S. A.

Canadian Branch at St. Catharines, Ont.



Padlocks, Night Latches, Dead Locks, Builders' Locks and Trim, Cabinet Locks, Trunk Locks, Automobile Locks, Bank Locks, Prison Locks, Door Closers, Electric Industrial Trucks, Chain Blocks, Electric Hoists, Trolleys

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Your Own Eyes Will Tell

THE minute you lay eyes on them you'll know them for first quality. When the job is finished you'll be sure that the work you've done will be a credit to you with

McKINNEY

Hinges Butts

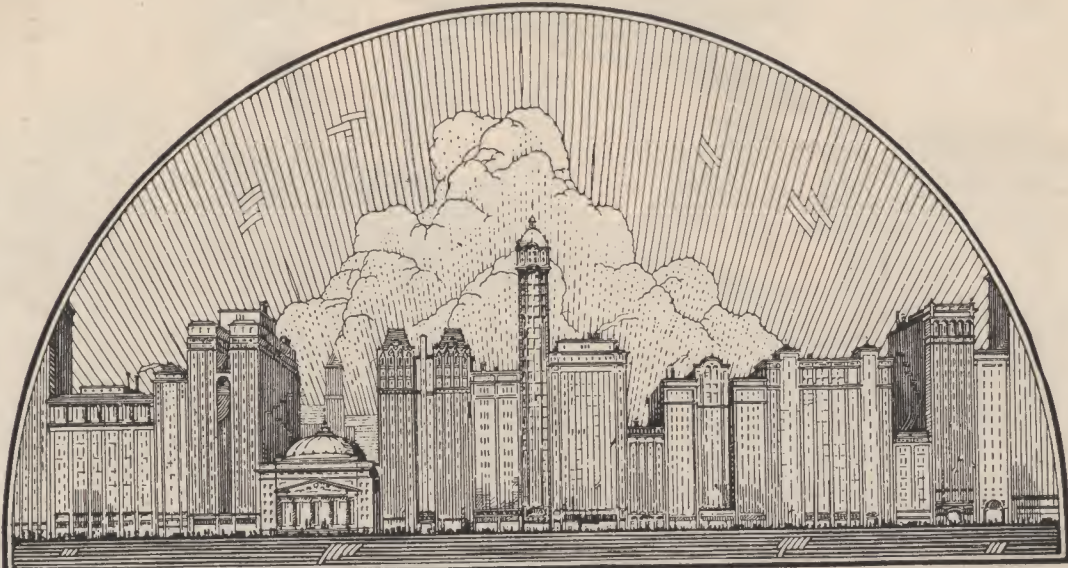
on the doors. They're accurately machined. They won't sag nor wobble. Knuckles fit as they should. So do the pins, which won't rise as the door swings.

McKINNEY MANUFACTURING COMPANY
PITTSBURGH PENNSYLVANIA

Western Office and Warehouse — Chicago

Garage hardware, door hangers and track, door bolts and latches, shelf brackets, window and screen hardware, steel door mats and wrought specialties

CONFIDENCE



260,000 MERCHANTS ARE WINNING.
THE PUBLIC'S CONFIDENCE
THROUGH

Kawneer
SOLID COPPER
STORE FRONTS

Contractors gain patronage and prestige as the public comes to have confidence in the quality and service of their work. Thousands of successful contractors have learned from experience that the best way to gain the public's confidence in store front work is to install the Kawneer Resilient Store Front Construction.

The story of Kawneer quality

and service is being told to a quarter of a million of the best retailers every month. When you talk Kawneer store front construction your merchant prospects know you are offering quality material. There are more than 260,000 installations to which to point.

Why not investigate this profitable line of work.

Write today for our Book of Designs and complete information about store front work.

THE KAWNEER COMPANY, 3126 Front St., NILES, MICH.



“PERFECTION” BRAND OAK FOR FLOORING

It is easier to sell a well known brand of anything. Your customers have greater confidence in its value. Stock “Perfection” Brand Oak Flooring—the flooring with a long established reputation.

We have two large plants manufacturing “Perfection” brand, plain and quarter sawed. This insures dependable service. Write today for full details. Watch for our national advertisements.



ARKANSAS OAK FLOORING COMPANY
PINE BLUFF, ARKANSAS

You

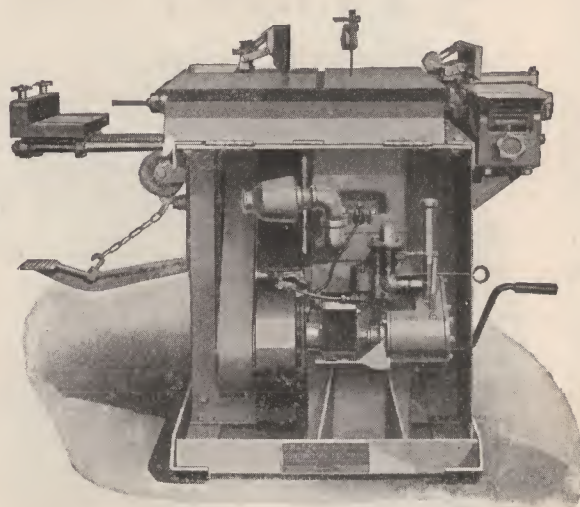
Should Know what

C.H.&E

Service Means

*Write for
Complete
Catalog on*

Saw Rigs,
Pumps,
Hoists, Elevators,
Mortar Mixers,
Engines.



Our Home Builders Saw Rig is
the Best and Biggest Value for
the Money on the Market Today

C. H. & E. Manufacturing Co., Inc.
322 Mineral Street
Milwaukee, Wis.

ATKINS

SILVER STEEL SAWS



ATKINS SILVER STEEL SAW No. 51
Old Style Handle, Skew Back



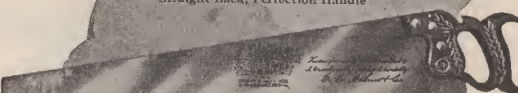
ATKINS SILVER STEEL SAW No. 53
Perfection Handle, Skew Back



No. 64, STRAIGHT BACK, SILVER STEEL
Handle Old Style Model



ANOTHER POPULAR PATTERN No. 65
Straight Back, Perfection Handle



ATKINS SILVER STEEL SHIP POINT
SAW No. 72
Ship Carpenter's Saw, No. 72 Point



Christmas Is Coming

And with its coming, one's thoughts naturally turn to gifts of remembrance—utility gifts.

The age-old question of what to give HIM can be easily settled right here and NOW.

What could be better than an Atkins Silver Steel Saw—Our No. 400—the Elite of the Saw World—

Can you imagine the delightful surprise in store for Father, Son, Brother, Sweetheart or Buddy when he opens his presents on Christmas morning to see a bright, shiny Atkins Saw, made of Silver Steel, Mirror Polish, Genuine Solid Rosewood Handle of our Improved Perfection pattern, attached to the saw with nickled screws; put up attractively and neatly in a special blue and white box for the holidays? Can you? Wouldn't it make you feel happy? Sure it would.

If you want to know how to get an Atkins Silver Steel Saw for Christmas, send ten cents in coin or stamps to cover cost of mailing and we will send by mail a beautiful gold plated miniature saw charm and a Saw Sense Book, provided you will give us the name and address of your hardware merchant. Full information will accompany our letter. Clip this out and send it NOW.

E. C. ATKINS & CO.

ESTABLISHED 1857

THE SILVER STEEL SAW PEOPLE

Home Office and Factory, Indianapolis, Indiana

Canadian Factory, Hamilton, Ontario
Machine Knife Factory, Lancaster, N. Y.

Branches Carrying Complete Stocks in The Following Cities:

Atlanta
Memphis
Chicago
Minneapolis

New Orleans
New York City
Portland, Ore.
San Francisco

Seattle
Paris, France
Sydney, N. S. W.
Vancouver, B. C.

ORIGINAL
The Paine Miracle Door
TRADE MARK REGISTERED
PATENTED JULY 10, 1923



Color—Walnut and Old Ivory

Costs only one dollar more than an ordinary door

Paine Lumber Company, Ltd.

Oshkosh, Wisconsin, U. S. A.

The

ORIGINAL
PAINE
Miracle
TRADE MARK REGISTERED
PATENTED JULY 10, 1923

Door

PANAMA PACIFIC
INTERNATIONAL EXPOSITION



1915

VENEERED BIRCH

KORELOCK CORE

MOULDING

INSERT FRAME BIRCH

FIVE PLY VENEERED
BIRCH PANEL



Construction of Miracle Veneered Door

The Miracle Door costs only one dollar more than an ordinary door

The Miracle Door is everything its name implies in quality, construction and price. It combines the simplicity of a one panel door with the richness of a moulded door. It is a cabinet shop product at the price of a stock door. It harmonizes with all styles of trim and all colors of finish. Like all Paine products it is fully guaranteed.

Wholesale stocks of Miracle Doors carried in over eighty cities. For sale by all dealers or write us direct. Catalogs are ready for distribution.

Paine Lumber Company, Ltd.

Oshkosh, Wisconsin, U. S. A.

ORIGINAL
The Paine Miracle Door
TRADE MARK REGISTERED
PATENTED JULY 10, 1923



Color—Brown Mahogany and Old Ivory

Costs only one dollar more than an ordinary door
Paine Lumber Company, Ltd. Oshkosh, Wisconsin, U. S. A.

The

ORIGINAL
**Paine
Miracle**
TRADE MARK REGISTERED

Door

PANAMA PACIFIC
INTERNATIONAL EXPOSITION



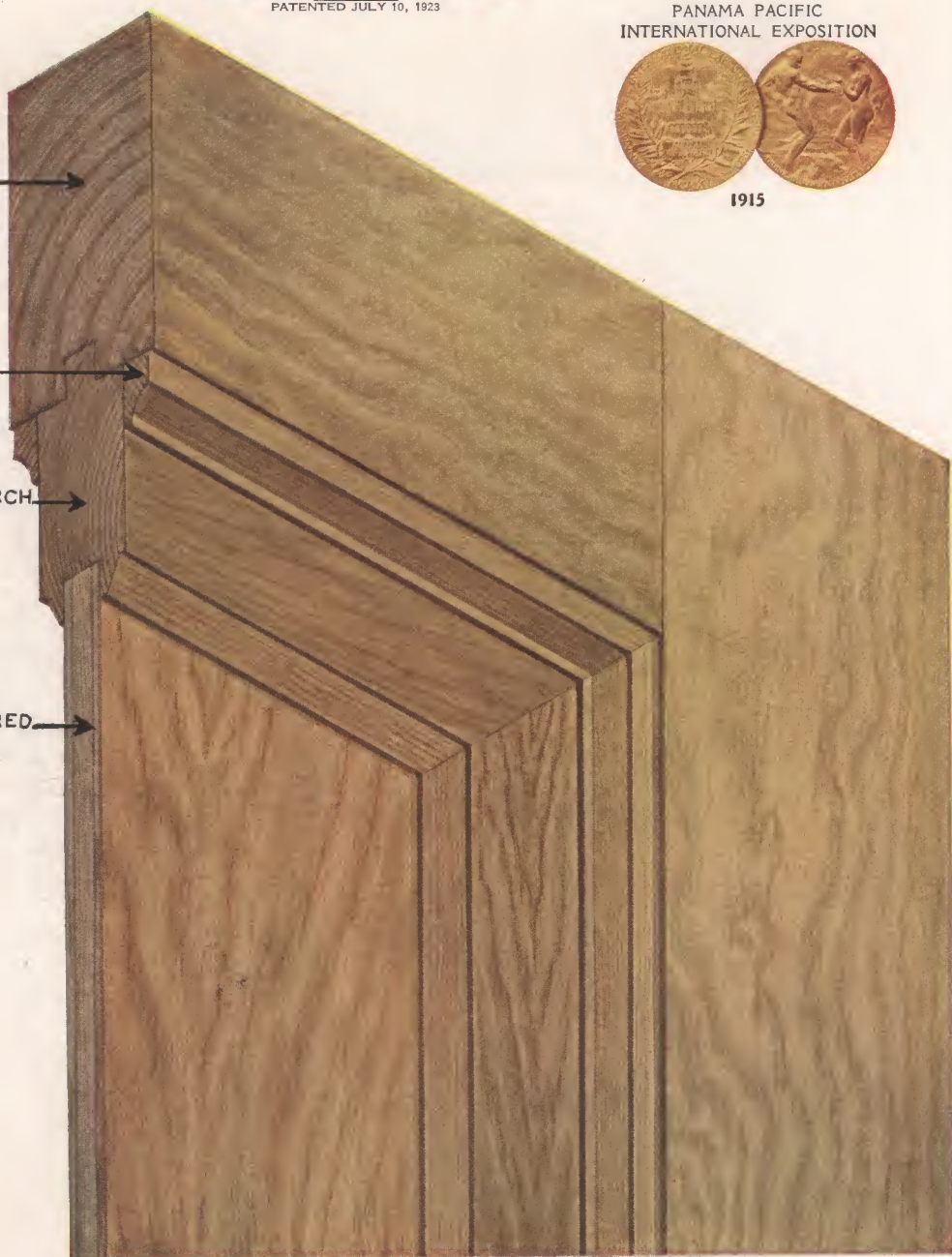
1915

SOLID SOFT WOOD
RAIL

MOULDING

INSERT FRAME BIRCH

THREE PLY VENEERED
BIRCH PANEL



Construction of Miracle Softwood Frame Door

The Miracle Door costs only one dollar more than an ordinary door

The Miracle Door marks an epoch in the door industry and is the greatest value ever offered in doors. It is built and guaranteed by an Organization that holds all the gold medals ever awarded the door industry. In producing the Miracle Door, we start in the forest and operate from tree to finished product with the largest woodworking plants in the world.

Wholesale stocks of Miracle Doors carried in over eighty cities. For sale by all dealers or write us direct. Catalogs are ready for distribution.

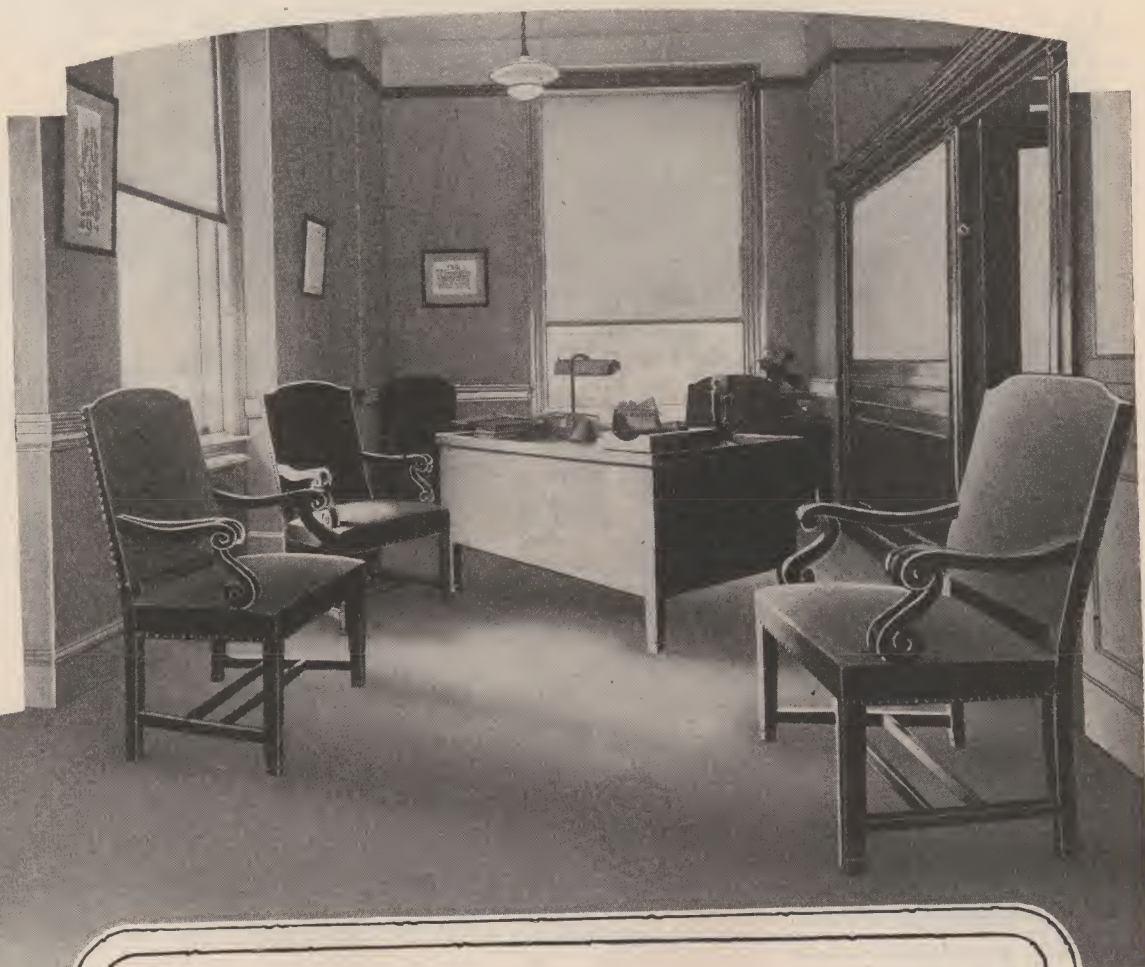
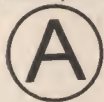
Paine Lumber Company, Ltd.

Oshkosh, Wisconsin, U. S. A.

Armstrong's Linoleum

for Every Floor in the House

Look for the
CIRCLE "A"
trademark on
the burlap back



Beautiful, Quiet Floors for the Bank

RESILIENCE is the quality that distinguishes linoleum from harder, denser floors—a resilience that insures quiet in the working places and means foot comfort for workers.

It is cork that makes linoleum springy. Cork also is tough, non-absorbent, waterproof. A binder of oxidized linseed oil adds to the toughness and resilience.

Cemented in place to the concrete subfloor, a smooth, seamless linoleum floor is easily and efficiently maintained by waxing and polishing. So laid and intelligently cared for, there is practically no wear out to linoleum. Floors laid twenty and

thirty years ago are still apparently as good as new.

The range of Armstrong designs enables you to assign the floor its proper part in the architectural ensemble. Marble and tile patterns, for example, for the public areas, solid color battleship gauges for the working spaces, two-tone jaspes, and artistic carpet designs for the private offices and conference rooms.

Finally, if you would learn how moderate is the cost of modern floors of Armstrong's Linoleum, write for samples and the names of contractors who will cheerfully and without obligation furnish quick figures on any job, large or small.

Armstrong Cork Company, *Linoleum Division*, Lancaster, Pa.



A private office in the American Exchange National Bank, New York City, floored with Armstrong's Green Battleship Linoleum.

B20



A residence at Longview, Washington—A. N. Torbitt, architect

The Home that lasts

Why

LONG-BELL LUMBER IS DEPENDABLE—

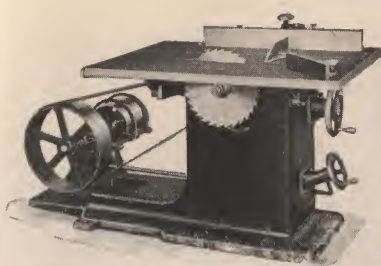
- 1—It comes from virgin forests.
- 2—Each log is cut and manufactured for the purposes to which it is best adapted.
- 3—Milled in our own mills, all operating with modern machinery under a uniform process and efficient supervision.
- 4—Unsurpassed accuracy and thoroughness at every step of manufacture.
- 5—Surfaced (planed smooth) four sides.
- 6—Unusual care in trimming.
- 7—Full length—uniform in width and thickness.
- 8—Uniformity of grading.
- 9—Uniform seasoning.
- 10—Lower grades receive the same care and attention as upper grades.
- 11—Correctly piled and stored—carefully shipped.
- 12—Minimum of carpenter labor—planing, sawing and sorting—necessary to put into construction.
- 13—Minimum of waste, due to uniform quality.
- 14—The product of a lumber company 47 years in the business.
- 15—Long-Bell Lumber can be identified by the Long-Bell trade-mark on the end of the piece.

A home is as durable as the lumber and construction that builds it. Whether it shall maintain its value only a few years, *or shall serve, without too-rapid depreciation, for a lifetime*, is a choice that is made in part when the builder selects and buys his lumber. To give the most actual building value for the money put into it, lumber must have thorough attention in manufacture. Long-Bell trade-marked lumber has the important safeguard of thorough care at *every step* of manufacture. It is economical and dependable—*enduringly* serviceable!

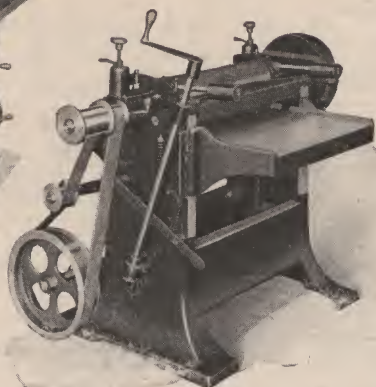
The Long-Bell Lumber Company
R. A. LONG BUILDING Lumbermen since 1875 KANSAS CITY, MO.

Long-Bell

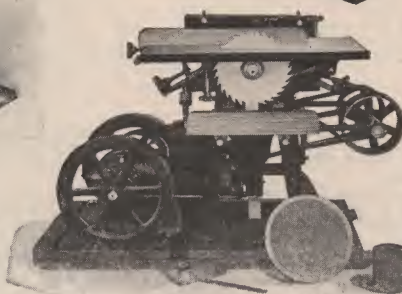
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



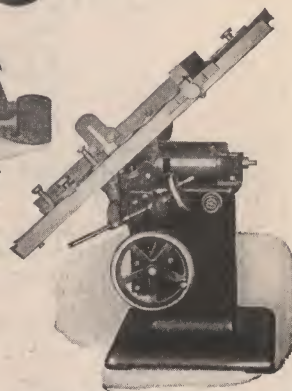
FAMOUS No. 2 Variety Saw



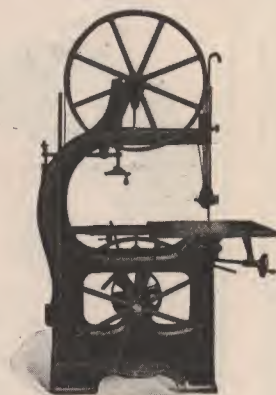
FAMOUS Single Belted Cylinder Feed Planer



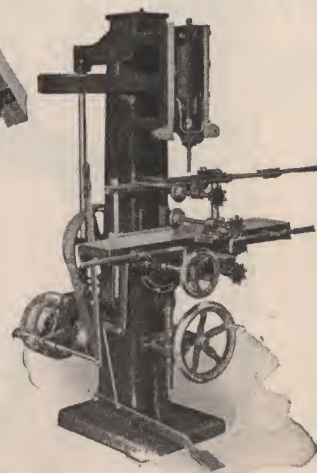
FAMOUS Portable Woodworker for Contractors



FAMOUS No. 26 P-W Variety Saw Bench



FAMOUS 36" Band Saw



FAMOUS Automatic Hollow-Chisel Mortiser



FAMOUS Motor-Drive Swing Saw

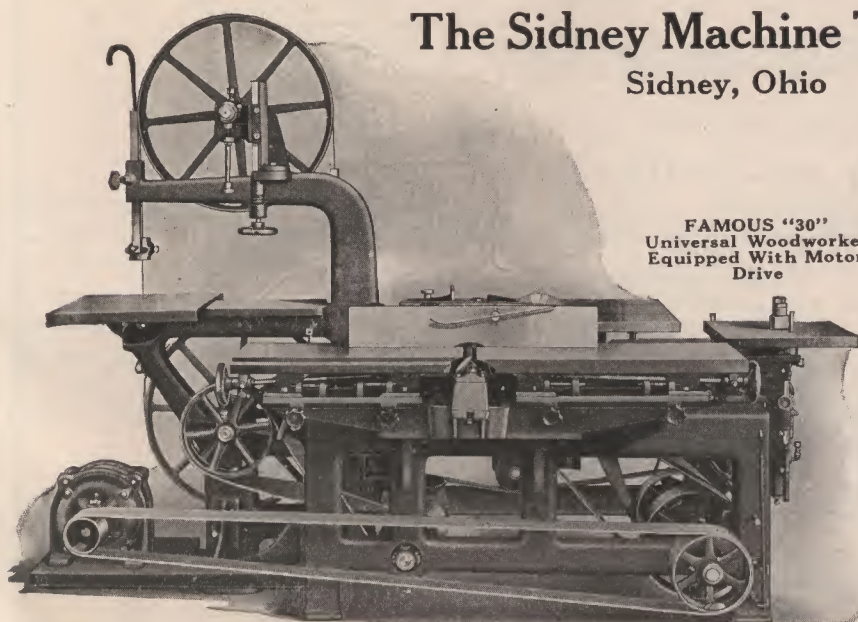
A Complete Line of Woodworking Machinery

A MAN who visited our factory recently was surprised at the diversity of our line of woodworking machines. Not only did he find all kinds of saws, from Variety Saws to the five-unit Universal Woodworkers, but he also found Planers, Mortisers, Shapers, and several other machines designed particularly for the man who makes things out of wood.

If you are making anything out of wood, from coarse lumber to the finest interior trim, or cabinet work, you will find a machine in the FAMOUS Line that will exactly meet your needs at a price surprisingly low. And you will find Famous Machines efficient and economical in operation.

Right now, while you think of it, is a good time to drop us a card asking for details regarding the particular machine in which you are most interested. Address Dept. 111.

The Sidney Machine Tool Co.
Sidney, Ohio



FAMOUS "30" Universal Woodworker Equipped With Motor Drive

Think This Over!

The Cost of Your Home Includes
Upkeep and Depreciation

Compare Two Similar Houses—

Frame - Costing **\$8000.**

Brick - at 7% more **\$8560.**

— Over a 10 Year Period

Both With Incombustible Roofs The Lot Assessments
and Taxes Will Be Practically the Same for Both

FRAME

Insurance on House - Rate 2.304 **\$184.32**

Insurance on \$3000 Contents at 2.816 **84.48**

Maintenance at 1½% - \$120 x 10yrs. **1200.00**

Depreciation at 2½% - \$200 x 10yrs **2000.00**

Total for Frame **\$3468.80**

BRICK

Interest at 6% on \$560 Extra Cost-10yrs. **\$336.00**

Insurance on House - Rate 1.44 **123.26**

Insurance on \$3000 Contents at 1.584 **47.52**

Maintenance at ½% Annually **428.00**

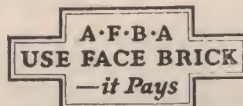
Depreciation at 1% Annually after 5yrs. **428.00**

Total for Brick **\$1362.78**

Extra Cost of Frame Over 10yrs. **\$2106.02**

Additional First Cost for Brick **560.00**

Balance in
Favor of Brick } **\$1546.02**



USE FACE BRICK—*it Pays*

Every contractor and builder has daily need for our "Manual of Face Brick Construction," an authentic, practical textbook on brickwork. Also includes 30 house plans. Address Dept. A-11

The seventh
of a series of
maxims on
the need for
Face Brick
Construction
SAVE THEM

THE AMERICAN FACE BRICK ASSOCIATION

130 North Wells Street • CHICAGO



*This old house
outlived two
ordinary roofs
It deserved a
permanent one*

VIEW OF A HOUSE BUILT IN "COLONIAL DAYS" ON NORTH FRONT STREET, PHILADELPHIA
and shown here without retouching

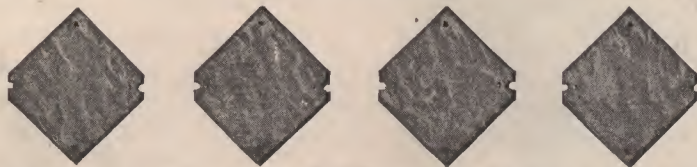
Split-wood shingles lasted longer in the days when this roof was put on than sawed shingles do now, yet neither the wooden shingles nor the standing rib metal roof that followed was as good as the original framework of the house. Rot, rust and decay got in their work with both materials, as here pictured.

Ambler Asbestos Shingles would have lasted just as long as any part of the house. They cost more at the outset than a temporary roof, but in the long run these sturdy shingles would have saved the owner many dollars, to say nothing

of annoyance. There is nothing about them to either rot or rust. Composed of the highest quality of hydraulic cement, with which is interwoven and intermixed long-fiber asbestos, these shingles stand unaffected by any of the elements that play havoc with wood or tin-coated steel.

Available in Natural Gray, Black, Brown, Green or Indian Red, for French or Honeycomb methods and in many other colors for the Tapestry Design in the American Method. Thicknesses $\frac{1}{2}$ " and $\frac{1}{4}$ " with broken butts, if you want them. Permanent as the everlasting hills.

Asbestos Shingle, Slate & Sheathing Company



AMBLER ASBESTOS SHINGLES

DEPARTMENT A

AMBLER, PENNA.

Branch Offices:—Baltimore, Boston, Buffalo, Chicago, Cincinnati, Detroit, Cleveland, Minneapolis, New York, Omaha, Philadelphia, Pittsburgh, Washington, Wilkes-Barre, Toronto, Canada

Southwestern Distributor: R. V. Aycock Co., Kansas City, St. Louis, Tulsa, Houston

Western Distributor: J. A. Drummond, San Francisco, Los Angeles, Fresno

Other distributors throughout the country

Are you familiar with this type of window



Looking in—Easily installed on any stock casement sash—Simple in design. Made of rust proof bronze.



Looking out—Operated by worm gear, turned by a small control lever. Cannot stick.

Made possible by Carrier's Quadrant Adjuster. For use in public buildings, schools, hospitals, or residences where maximum ventilation, convenience and artistic effect are desirable.

Advantageous features of this type of window are—

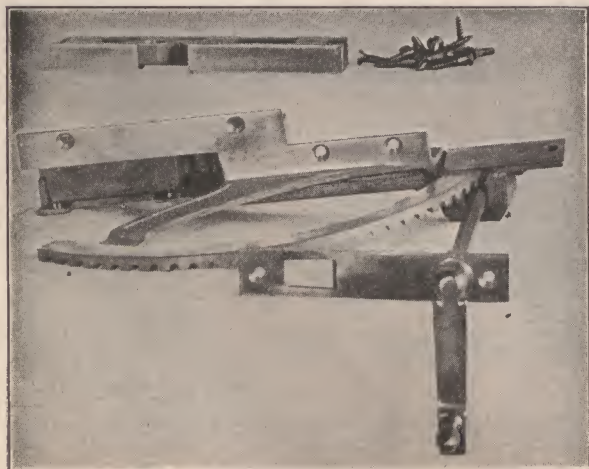
- 1—Not necessary to move screens to open or close window.
- 2—Window is automatically locked in any position.
- 3—There are no fasteners or hinges required.
- 4—Eliminates any possibility of rattling or sagging.
- 5—Both sides of window easily cleaned from within the room.
- 6—Quickly and easily installed at a low cost.

Write for our Architectural Leaflet which contains detailed drawings and specifications.

*Sweets and Architects'
Samples Corporations
New York*



CARRIER ADJUSTER COMPANY
Casement Window Hardware
Jacksonville, Fla.



Carrier Quadrant Adjuster—in itself complete window hardware

This ad is sending *thousands* of customers to Beaver dealers

Be one of them

October 27, 1933 THE SATURDAY EVENING POST

How to use

Whenever you have a need for a large, smooth, durable sheet of refined lumber, buy genuine Beaver Wall Board with the Red Beaver Border on the margins. It comes in panels 32 to 48 inches wide and from 6 to 16 feet long. It is made entirely of spruce fibre and saws and nails like lumber.

A few of the uses to which Beaver Wall Board is being put are illustrated. For the complete story get the New Beaver Plan Book described on the opposite page.



The illustrations at the right show three of the many possible paneling treatments, each representing thousands of uses of Beaver Wall Board.

October 27, 1933 THE SATURDAY EVENING POST

WHY to use

Genuine Beaver Wall Board is the original wall board. It contains today, improvements that have developed during more than 17 years of experience. It is the only wall board that offers you the advantages of all virgin spruce fibre through and through, and the other features listed below.

Look for the Red Beaver Border
Demand Genuine Beaver, with the Red Beaver Border. Even with these distinct advantages it costs no more than ordinary wall board.

- 1 All Virgin Spruce Fibre**
No recycled fibre or shoddy concentrated. Beaver Wall Board is the only wall board made entirely of virgin spruce fibre.
- 2 26 Layer Construction**
Genuine Beaver Wall Board is made of 26 layers of virgin spruce fibre, pressed and laminated into molding panels, that will not warp or fall.
- 3 Patented Sealite Formula**
makes Genuine Beaver Wall Board practically impervious to moisture and climatic changes.
- 4 Art Mat Surface**
permits superior decorative effects and easy painting colors.
- 5 Superior Insulation**
Genuine Beaver Wall Board is filled with millions of microscopic "dead-air" spaces that give added insulation against heat, cold and sound.
- 6 Kiln Dried and Seasoned**
at the factory. This eliminates all danger of contraction and expansion after the board is nailed into place.

See Your Local Carpenter and Lumber or Building Supply Dealer

Your local lumber or building supply dealer can supply you with Genuine Beaver Wall Board with the Red Beaver Border. Your local carpenter can give you an estimate of cost and do all the work.



Write for the Beaver Plan Book — Use Our Free Plan Service
Just Mail the Coupon

Every building owner, carpenter or contractor should have the New Beaver Plan Book. It shows the many uses of Beaver Wall Board. Illustrations, detailed wall and ceiling treatments in color. Tells how to plan a Beaver Wall Board room. Gives many hints and ideas for wall and ceiling treatments and we will mail you a copy free of charge. We will also send you samples of Beaver Wall Board and tell you about the Beaver Plan Service. This important department will furnish you all the plans, complete plans for any room, with material estimates, color schemes, etc. Mail the coupon now.

The Beaver Products Company, Inc.
Buffalo, N. Y.
Phoned City - London, N.Y.

Coupon
The Beaver Products Co., Inc.
Dept. 9, Buffalo, N. Y.
Customers — Please send me information, a copy of the Beaver Plan Book and samples of Beaver Wall Board and estimate on about your Free Plan Service.

Name _____
Address _____
City _____ State _____

BEAVER

WALL BOARD

BEAVER

WALL BOARD

Beaver advertising is successful *because it continually directs buyers to the dealer.*

Thousands of customers report direct to Beaver dealers. Other thousands "clip the coupon" and write us. We turn these live prospects right over to the dealer.

Above we reproduce the two-color, two-page "Saturday Evening Post" advertisement of October 27th. This is *just one* smash in the big campaign which is educating the public to demand the "Red Beaver Border" with its **SIX VITAL ADVANTAGES**.

Get your share of this growing demand. Mail the coupon **TODAY** for the two new Beaver Books and for details of our proposition.

THE BEAVER PRODUCTS CO., Inc.
Thorold, Canada BUFFALO, N. Y. London, England

Makers of Beaver Wall Board, Beaver Vulcanite Roofing,
Beaver Gypsum Wall and Gypsum Products

BEAVER

WALL BOARD

"The all virgin spruce fibre wall board"



C O U P O N

The Beaver Products Co., Inc. Dept. 9
Buffalo, N. Y.

Gentlemen:

Please send me at once copies of your free books—"The Beaver Plan Book," and "Application and Decoration"; also your dealer proposition.

Name _____

Address _____



Home of Mr. M. Mark
Gedney Way, White Plains, N. Y.

A Copper Roof Makes a Quicker Sale

Among the different styles of Copper roofing you will find one that will greatly add to the appearance and salability of any house you build.

See the striking beauty of the standing seam roof of Copper shown above. In these days of many varieties of small piece roofings, there is a refreshing individuality in this standing seam roof which lifts it out of the commonplace.

For other types of houses, the Copper Shingle or Copper Spanish Tile roof may serve better.

But whatever the style or size of the house, a roof of Copper invariably means a quicker, easier sale at a better price.

To help you sell buildings with better, more distinctive roofs, we have prepared the small book, "Copper the Ideal Roof." As many copies as you want FREE. Send them to your prospects. Let them SEE the various ways in which the roof of Copper may be applied.

COPPER & BRASS

RESEARCH ASSOCIATION

25 Broadway - New York



The Shingle that never curls

Carey
ASFALTSLATE
SHINGLES

Get this booklet for your customers

Send your name and address on coupon below and we'll send you a copy. *Read it.* If you want additional copies for your prospects, let us know. We'll arrange it without any cost to you for the booklets.

SHINGLES that will rot, leak, split, curl, dry up, rattle, work loose or catch fire easily, are a losing speculation, a costly experiment.

You can protect the man for whom you build against all these misfortunes by insisting on CareyAsfaltslateShingles. They never fade. They never require painting. Their beauty is permanent.

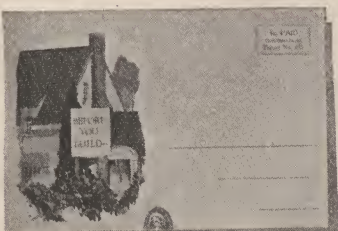
They are surfaced with red, green, or blue-black crushed slate.

CareyAsfaltslateShingles never curl. This non-curling feature is added protection against drying out, against leaking, rotting, rattling and working loose in the wind.

Such a well protected, well preserved house always reflects credit on its builder.

The Philip Carey Company, 510-530 Wayne Ave., Lockland, Cincinnati, Ohio

CLIP THIS AND MAIL TODAY



**The Philip Carey Company,
Lockland, Cincinnati, Ohio**

Gentlemen: Please send copy of "Before You Build" to

Name.....

Firm.....

Address.....



It is infringing to make, use or sell a patented invention without authority under the patent. Our patents have been sustained by the United States Courts in six different instances. Purchasers of our mixers are protected.

Why this New Jersey Contractor Swung Back to the Jaeger

HIS first concrete mixer was a Jaeger—one of the Big-An-Little models we made years ago. It made money for him—but he took its excellent qualities for granted. Then along came a salesman and induced him to buy a drum type mixer—but he quickly discovered that he couldn't afford to run it. This is what he told the Jaeger distributor: "This mixer (not a Jaeger) is just as good as the day we bought it. We haven't had a bit of trouble with it. It costs us \$800 but we sell it for \$400. We want a Jaeger."

He sold the mixer and bought a Jaeger 4L—because—*"the other mixer took 8 men to do the work that a Jaeger would do with 5 men."* He proved that he could save many dollars every day by using the Jaeger! And that's a common experience!

A Better Mixer in Many Ways

The Jaeger has an enviable reputation for speed and labor-saving. It loads quickly, mixes fast and discharges the batch almost instantly *because it Tilts and Pours*. Records prove you can average a Mix-a-Minute.

The Jaeger is light, yet strong—and it is extremely simple. It has a single center bearing instead of eight as in non-tilting mixers—and this center bearing will last as long as the mixer. The Jaeger is a real engineering achievement. Its many superior features are fully explained in the new Jaeger catalog. Write for it today.

THE JAEGER MACHINE CO.

318 Dublin Ave. COLUMBUS, OHIO

Concrete Mixers Mixer-Trailers
Placing Plants Pavers





ARCHITECT

CONTRACTOR

SUPPLY DEALER

BUILDER

MASON

All these men help You achieve success in the manufacture of **DUNTILE** THE PERFECTED ALL-PURPOSE CONCRETE BUILDING UNIT

IF you are interested in establishing a manufacturing business of your own, there is no enterprise in the building industry in which your success is so well assured in advance as the manufacture of DUNTILE.

This Vital Support Is Yours

It has been the experience of every one of the owners of DUNTILE plants already established throughout the country that their products are eagerly welcomed by every important branch of the great building trade. The architect puts his seal of approval on DUNTILE because he finds in it the scientific answer to the need for a light-weight unit of ample strength for the complete construction of all types of buildings. The contractor is equally enthusiastic because DUNTILE enables him to do first-class work at a better profit to himself. The mason O.K.'s it because it is a unit of dependable dimensions—because it is convenient and easy to handle—because it goes up rapidly in the wall. The supply dealer is glad to push the sale of DUNTILE because it has such a wide variety of uses; consequently he can dispose of it in large quantities.

The Greatest Reason for DUNTILE Popularity

Most important from your point of view is what the actual builder—the man who pays the bills—thinks of DUNTILE. His reason for preferring it above

all other building materials is this: **DUNTILE Builds Better Buildings Cheaper.** And inasmuch as DUNTILE is equally as adaptable to small buildings, residences of all types, public buildings and even skyscrapers, it is plain that every builder in your community is a good prospect.



DUNTILE

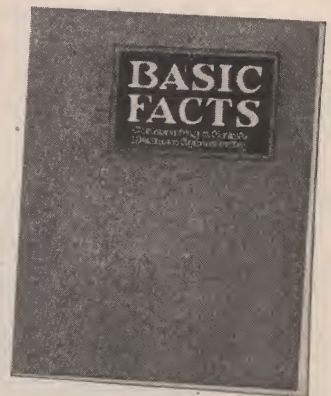
is an absolutely standardized product, made in eight convenient sizes to meet every building requirement. It is produced on highly developed automatic equipment in standardized DUNTILE plants. Quantity production on a profit-sharing basis is assured from the outset.

Other Facts You Should Know

In such a message as this it is possible only to barely touch on a few of the outstanding advantages open to one man in every community where there is not already a DUNTILE plant. But—note this carefully—there is no other business that offers such large profits on such a moderate outlay of capital as the manufacture of DUNTILE. This we are prepared to prove from every possible angle.

This Valuable Book on Request

Everything you need to know to start you on the way to manufacturing independence is contained in our book, "BASIC FACTS." This valuable collection of facts and figures will point the way for you as it has for so many others. Write for it NOW.



W. E. DUNN MANUFACTURING CO.

415 WEST 23RD STREET

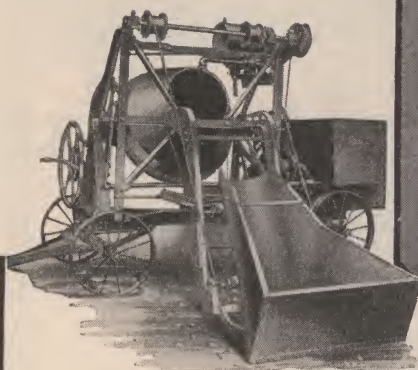
HOLLAND, MICHIGAN

DUNN STANDARDIZED TILE PLANTS
COMPLETELY EQUIPPED FOR MANUFACTURING
BUILDING, DRAIN AND SILO TILE.

DUNN TILE MACHINES
DUNN SHOVEL MIXERS FOR PRODUCTS PLANTS
DUNN CONCRETE, MORTAR AND PLASTER MIXERS.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



WONDER-

The Quality - Capacity Mixer

There is no mixer in the world that has a *greater capacity* per rated batch than the WONDER.

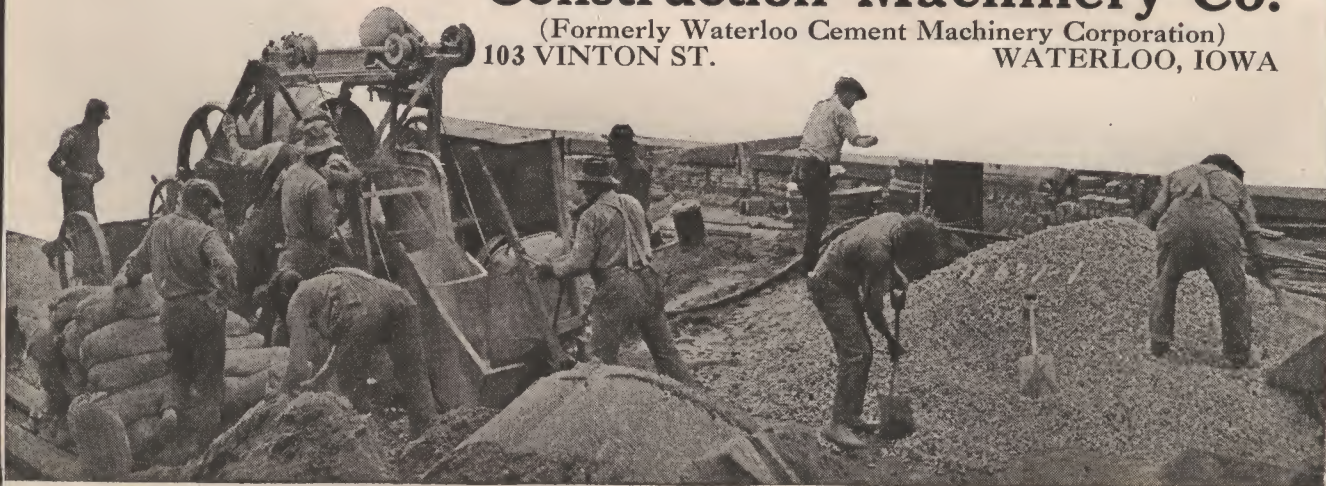
Each size of WONDER Mixer has unusually liberal drum dimensions which gives a surplus capacity over each rated size and also an exceptionally fast and thorough mixing action. This combined with the quick charging and rapid pouring discharge of the WONDER drum enables you to obtain the greatest possible capacity per day—an unusual extra yardage as compared with other mixers.

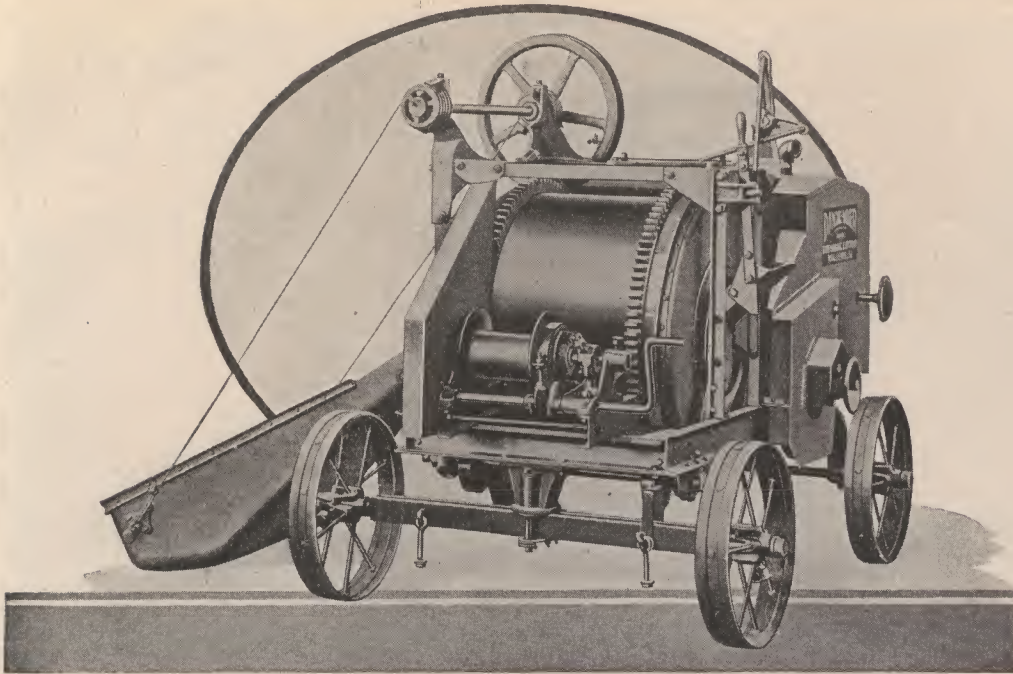
WONDER bridgelike construction enables you to maintain this high speed schedule under continuous operation without interruptions. The large number of WONDER Mixers still in use today which have been in continuous service from ten to twelve years, is the most conclusive proof of this superior design.

The WONDER catalog thoroughly illustrates and describes the superiority of WONDER design. Send for it today as well as our latest price list.

Construction Machinery Co.

(Formerly Waterloo Cement Machinery Corporation)
103 VINTON ST. WATERLOO, IOWA





**Send Coupon
or write for
Full
Information**

Mixes both mortar and concrete! Hoists.

FIRST of all the Koehring Dandie is a strongly constructed concrete mixer, but because of its mixing action it also mixes mortar. No changes needed! Always ready to go on either a mortar or concrete job. That's getting fullest use and return out of equipment investment. And in addition there is a light duty hoist attachment.

At the same time you are always ready to do a concrete job—foundations, silos, footings, culverts, sidewalks, drives, alleys, etc. The Koehring Dandie is the dependable light mixer — built with Koehring construction. Big volume production and standardization keep price down — gives you a dependable concrete mixer, interchangeable for mortar mixing at a light mixer price.

Capacities

4 and 7 cu. ft. mixed concrete. Gasoline or steam. May be equipped with low charging platform, batch hopper, automatic water measuring tank, light duty hoist, steel or rubber tires.

KOEHRING DANDIE

KOEHRING COMPANY

Manufacturers of Concrete Mixers and Cranes, Excavators and Power Shovels
MILWAUKEE, WISCONSIN

Sales offices and service warehouses in all principal cities.

*Foreign Department, Room 1370, 50 Church St., New York City;
Canada, Koehring Company of Canada, Ltd.,
105 Front Street East, Toronto, Ontario;
Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.*

KOEHRING COMPANY
MILWAUKEE, WIS.

Please send me Koehring Dandie Mixer Catalog No. 1, and give full information on interchangeability for mixing concrete and mortar.

Name _____

Address _____



*New Hotel Statler, Buffalo; Architects, Geo. B. Post & Son;
Contractors, Masten Construction Company*

Hotel Statler Builders Specify GF Waterproofings

A Few GF Waterproofing Materials

- GF Integral Waterproofing Paste (GF 10)**
Mixed with the gauging water to waterproof mass concrete.
- GF Membrane Materials**
For walls and surfaces under hydrostatic pressure.
- GF Colorless Waterproofing (GF 100)**
A brush coating for waterproofing concrete, stucco and masonry surfaces.
- GF Dampproofing Coating (GF 200)**
A brush treatment for masonry surfaces to be plastered.
- GF Mastic Cement (GF 250)**
A plastic waterproof cement.
- GF Crystalrox (GF 145)**
For hardening and dust-proofing new and old concrete floors.
- GF Cement Accelerator (GF 12)**
Quickens setting of cement and prevents freezing of mixture.

In the construction of the new Hotel Statler at Buffalo, 26,000 pounds of GF Integral Waterproofing Paste (GF 10) were used in the foundation footings.

Its builders realized the importance of permanent, waterproof concrete. After careful examination, they found GF 10 the most able waterproofing agent.

The action of the paste, dissolved in the mixing water, makes a strong, nonporous, uniform structure, inherently waterproof.

The original cost of GF 10 is small—and there are no added labor or supervision details.

Write for copy of the The Waterproofing Handbook—Sixth edition

GF Waterproofings
And Preservative Products

THE GENERAL FIREPROOFING CO., Youngstown, Ohio

Branches:

SYRACUSE CHICAGO BOSTON MILWAUKEE KANSAS CITY MINNEAPOLIS ST. LOUIS OMAHA
SAN FRANCISCO ATLANTA PHILADELPHIA NEW YORK CLEVELAND LOS ANGELES

Export Department: 438 Broadway, New York City—Cable Address: "Genfire-New York"

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Liveable Homes Are the Homes That Sell



"Oh, Daddy, *now* it feels good
just to breathe in our house."

WITH the building boom on, there's real money to be made by builders who can turn capital rapidly enough.

Why argue then about doubtful heating systems when your buyer so readily accepts the Holland Bond for what it is—a guarantee by the World's Largest Installers of Furnaces that the heating system will provide ample heat with healthful circulated warm air.

Since the Holland is so efficiently advertised, and since the Holland story is verified by a million people who enjoy comforts, the value of the Holland Bond in turning quick sales is an asset no builder should overlook, and—Liveable Homes are the Homes that Sell.

Holland Heated Homes are liveable. Ask for details regarding Holland installations for one or for hundreds.

***Holland Furnaces
Make Warm Friends***

HOLLAND FURNACE COMPANY

World's Largest Installers of Furnaces

General Office: HOLLAND, MICH.

Two Factories: Holland, Mich., and Cedar Rapids, Iowa

Central Chicago Office: Building Material Exhibit, 6th Floor Leiter Bldg., 15 East Van Buren Street

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Why a HESS!

Reason No. 4

Square Steel Radiator!

Riveted
and
Welded



"Every Inch
a Furnace"

Quick, Easily-Regulated Heat, and Plenty of it—Economically!

THE HESS square steel radiator is very sensitive to heat, responding instantly to a small fire and radiating practically all of the heat produced; for sheet steel conducts heat immediately, without the loss of time and fuel required to heat bulky cast iron to its radiating point. The square shape provides a much greater area of radiating surface than is possible in round types of heaters, increasing in direct proportion the amount of heat circulated.

Great durability results from the uniform expansion and contraction of sheet steel distributed over a large area. HESS construction entirely overcomes the cracking of parts and opening of joints common in sectional furnaces, and the consequent broadcasting of gas and dirt. The welded seams, fused and sealed air-tight, and guaranteed against opening and leaking, make forever impossible the escape of dirt and gases into the rooms of the house.

"Modern Furnace Heating" a practical book on the subject of heating, and describing HESS FURNACES, will be sent on request

HESS WARMING AND VENTILATING COMPANY
1220-M Tacoma Building · Chicago

Branch Offices: New York City, Detroit, Minneapolis, Milwaukee, Cincinnati
Local Distributors: B. M. Huntington, Walla Walla, Wash.; Henry Taylor & Sons, Jacksonville, Fla.;
Frank Mezera, Eastman, Wisc.; C. E. Shingledecker, Clarion, Pa.; Harry Cable, Falls Creek, Pa.

HESS *Welded Steel* FURNACE

Three Fundamental Truths That Every Contractor Should Know

If we can impress upon the American contractor three important truths, we shall have done a constructive service. These Three Truths are—

1. *That there is a greater difference in wallboards than there is in grades of lumber.*
2. *That a good wallboard properly applied is actually better than lath and plaster, or any plaster substitute.*
3. *That Upson Board stands in a class by itself, and is fittingly used in the finest of homes—that there is nothing better for recovering cracked and unsightly ceilings at any price.*

Many contractors do not realize these truths. And there is a reason. Many boards are not made to give satisfaction. "Price" rather than consumer satisfaction govern their production.

The "price" manufacturer forgets that "the best way to make a business grow large is to give the most." As a result, unsatisfactory installations have invariably followed the sale of cheap, irresponsible boards.

But it is just as wrong to condemn all wallboards, *especially Upson Board,*

as it is to condemn all shoes because some are made of inferior leather.

Upson Board has *proved* itself a staple building material. It has established the enviable record of less than one complaint to every 5,000,000 feet sold and used.

If you could see, as we have seen, some of the splendid installations of Upson Board in the finest of homes, you would say "When I stop to think of the defects of plaster in any form I realize that Upson Board is better in every way for new homes or old—and especially for recovering ceilings."

Upson Board is coming into its own. More and more contractors are recommending and using it. For truly Upson Board

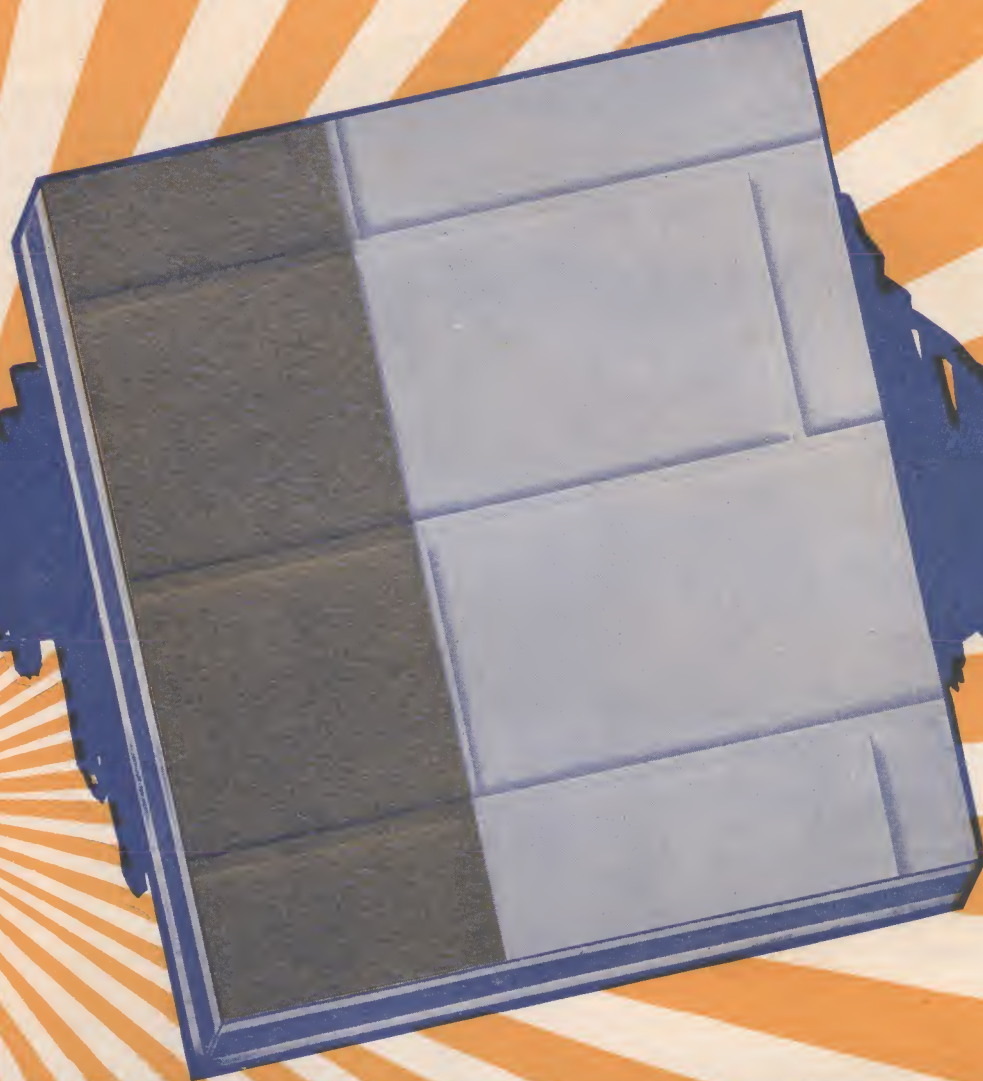
deserves the confidence of carpenters and contractors because it helps them to build a permanent, increasing profitable business.

Whenever you see color with wallboard as a mark of identification, think of the famous blue-center of dependable Upson Board. It is the original color trademark—frequently imitated by others—used to identify a particular make of wallboard.



Did you ever see a Fib

At the right is an actual photograph of the oblong pattern Upson Fibre-Tile. You can identify genuine Upson Board and Upson Fibre-Tile by the famous *blue* center—the *original* color trademark used to identify a particular brand of wallboard



Any good carpenter, by following the simple directions we furnish, can Upsonize a kitchen with equally attractive results. Here the Square pattern of Upson Fibre-Tile has been used for a wainscot, and Upson Board for the upper walls and ceiling.



Upson Board makes ideal walls and ceilings for the bedroom. There is no danger of an Upson Board ceiling falling on sleeping occupants of a room, as sometimes happens with plaster—frequently with painful results. Upson Fibre-Tile lines the bathroom shown above.

Fibre-Tile Board like this?

UNLESS you have seen Upson Fibre-Tile, you haven't! For there isn't another Fibre-Tile board made that is anything like Upson Fibre-Tile.

It is the *only* Fibre-Tile board with a *hard, smooth, fuzzless* surface.

The tile indentations are decidedly prominent and *permanent!* They will never come out. It isn't a new product. It has been made and sold in limited quantities for 10 years. But until we increased our manufacturing facilities, recently, we were never able to supply the demand.

Now, however, every carpenter and contractor can obtain Upson Fibre-Tile. It is a profitable product to know and use.

For there is a use for it in every home, and in countless other places where clean, white, easily-kept-clean walls are desirable—such as in markets, barber shops, hospitals and stores of all kinds.

You cannot afford to jeopardize your good name by using cheap, punky fiber-boards, which will not stand the severe tests to which tiled walls are put, or heavy, brittle absorbent boards which frequently prove far from satisfactory, with subsequent blame on the man who installs it.

We shall be glad to get you started as an Upson Board and Upson Fibre-Tile Expert. Write for samples of Upson Fibre-Tile and Upson Board and further information as to how to qualify as an Upson Board Expert.

THE UPSON COMPANY

Fiber-Board Authorities.

LOCKPORT, NEW YORK

Upson Fibre-Tile has practically all the advantages of ceramic tile and many exclusive advantages of its own. It costs about 1-10th as much—it cannot loosen—it is lighter and more easily applied.

Substitutes for ceramic tile which are stuck to the walls are not to be compared with Upson Fibre-Tile which stands in a class by itself.

It is the carpenter's job to install Upson Fibre-Tile! Already hundreds of carpenters are reaping substantial profits the year round, in re-lining bath rooms, kitchens and laundries and countless other places with this wonderful material.

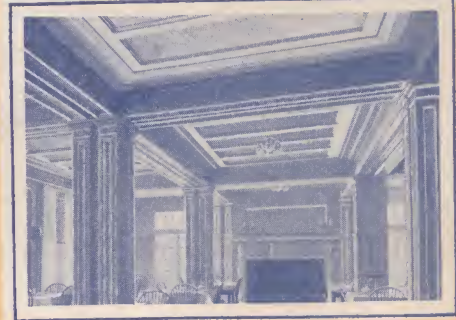
Upson Fibre-Tile is also used in the finest of new homes. It gives *complete* satisfaction. The most discriminating contractor can safely use and recommend it, and put his good name behind every job he does.



Upson Board is particularly suitable for walls and ceilings where a strictly period design is desired. This room is of the Adam Period. It does not look like an ordinary wallboard installation, does it? Let us tell you how you can turn out jobs like this.



And here is a Georgian Dining Room with Upson Board walls and ceiling. It is certainly a high class job—one that any carpenter could be proud of. You can do such work right in your community. Write for farther information.



For Ceilings— There is nothing better than Upson Board!

We invite you to investigate, *thoroughly*, all the wallboards on the market.

You will find that Upson Board is *different!*

You will find that it is harder, stiffer and nearly *twice* as strong as other fiber boards. It is *not* soft and punky like some boards.

You will find that Upson Board is the kind of a board it is *safe* to use for ceilings, because it is so hard, and *stiff* and *strong*.

Vibrations cannot cause crystallization around the nails as in the case of brittle boards, and thus permit the panels to work loose—or even fall.

Some boards, as you know, are made of material which has little or no strength of itself, and pulverizes when subjected to strain or vibration.

Then too, Upson Board is better adapted for ceilings than almost any other material

because it combines *lightness* with *strength*, and *beauty*. Upson Board weighs only about one quarter as much as plaster or *heavy*, brittle boards.

It is therefore much easier to apply to ceilings since the carpenter is not obliged to lift and hold 60 to 80 pounds when applying a 10-foot panel, and starting to nail it. And the chance of breakage, which is great with brittle Board, is practically eliminated with Upson Board.

Think of the ceilings that come crashing down every day all over the country—many probably in your own community. They must be repaired. Upson Board is the best material for this purpose—You, the local carpenter or contractor are the logical man to make the repairs—with *Upson Board!* You should *know* Upson Board. Write today for samples and information about this *nearest* perfect wall and ceiling material.




UPSON

FIBRE

TILE





Cannon Ball Beats 'em all

Best in Winter, too!

WINTER is coming, and the hangers of thousands of doors will receive their greatest test. Doors will be opened and closed much oftener than in the warmer months. Buildings will warp and settle and sag as frosts and thaws come and go.

Owners of Cannon Ball equipped buildings are not worried by these things. Tubular Cannon Ball Track and round Cannon Ball wheels mean even bearing and smooth operation in spite of sagging walls, and nothing can collect in the track to bar the easy passage of hangers and wheels. Moisture can't condense inside of Cannon Ball track, mingle with rust and scale and dirt, and freeze, perhaps, to cause binding and jamming.

Many other Cannon Ball Features are described in booklets every builder should have. Send for them



This cross section shows why Cannon Ball Wheels always bear evenly and why nothing can stay in the track to obstruct. Now you know why Cannon Ball Track and Hangers laugh at winter.

STAR

Equipment



HUNT, HELM, FERRIS & CO., Harvard, Ill.
 Albany, N. Y. Minneapolis Los Angeles San Francisco

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



DOORS—OF GENUINE MAHOGANY

In any residence—large or small—the richness, beauty and durability of Mahogany doors add a rental or sales value far above the small additional cost of installation.

There is no stronger selling argument than—
“The doors of this house are of Genuine Mahogany”

MAHOGANY ASSOCIATION, INC. 1133 BROADWAY, NEW YORK

FURNITURE

MAHOGANY

WOODWORK



"OPPORTUNITY STREET"

Lies as an open book before you

With merchants everywhere realizing the actual dollar-value of attractive store exteriors, the demand for "Desco" Store Fronts is increasing at a tremendous pace. "Main Street" is "Opportunity Street" in every city.

Contractors everywhere are finding a responsive market for these profitable jobs.

We have published a book which tells how you can secure a generous share of this business—how to locate prospects and sell them Desco Fronts.

Contracts come easily to those who install Desco Fronts exclusively because Desco is recognized as the highest development of modern metal construction. The profits are long because Desco Fronts are quickly installed without alterations by inexperienced mechanics. The technical features of expansion, drainage, ventilation and glass cushioning, are provided in a very practical way.

Write for this book and learn how you can keep your men busy on "Opportunity Street" by making each job sell others.

Desco

METAL

DETROIT SHOW CASE COMPANY

1654 Fort St. West

Detroit, Michigan (128)

STORE FRONTS



In many cities Desco is stocked by distributors who can fill orders immediately. Ask for the name of the distributor nearest you. See Sweet's catalog for Desco details.

Detroit Show Case Co.
1654 Fort St. W., Detroit Mich.

Without obligation on my part send me a copy of your book on Desco Store Fronts.

Name _____
Business _____
Street _____
City & State _____

EXPANDED WOOD LATH CORPORATION

TUSCALOOSA, ALABAMA



Expanded Wood Lath **PROVED STIFFER THAN STANDARD CONSTRUCTION**

Comparative tests made by Robert W. Hunt & Co., Engineers

Results of Test

Actual Movement of Upper Sill

| Load Applied in Pounds | A—Lath and Sheathing | B—Expanded Wood Lath |
|---------------------------|-------------------------|-------------------------|
| 200 | 0.06 inches | 0.06 inches |
| 400 | 0.15 | 0.13 |
| 600 | 0.26 | 0.20 |
| 800 | 0.59 | 0.29 |
| 1000 | 1.07 | 0.37 |
| 1200 | 1.93 | 0.51 |
| 1400 | 3.65 | 0.67 |
| 1500 | 5.13 | 0.92 |

IDENTICAL panels with frames four feet high and eight feet long constructed with sills and studs $1\frac{1}{2} \times 3\frac{3}{4}$ in. and studs placed 16 in. or centers, were prepared.

Frame A had one side covered with $\frac{3}{4} \times 6$ in. dressed sheathing nailed at each stud with 8D nails, and the other side covered with common lath spaced 2 in. on centers and staggered in the usual way.

Frame B was covered on both sides with Expanded Wood Lath sheets 8 ft. long and 16 in. wide, fastened at the juncture of each rib and stud with 5D nails.

In testing these panels the bottom sill was clamped to the base of testing machine and the pull applied to the top sill in the direction of its length.

Expanded Wood Lath, by this test, has been proven much stiffer than the old standard construction. But added to this advantage are its high insulating qualities and the much lower construction cost when used for either exterior stucco or interior plaster.

Automatically Backplasters

*between the lath and asphalt felt. Not an ounce of material wasted.
You get the intrinsic value and strength of every ounce used.*

Complete Report of This Test and Descriptive Literature Will be Sent on Request

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Conway Building, Chicago, Ill.

Date.....

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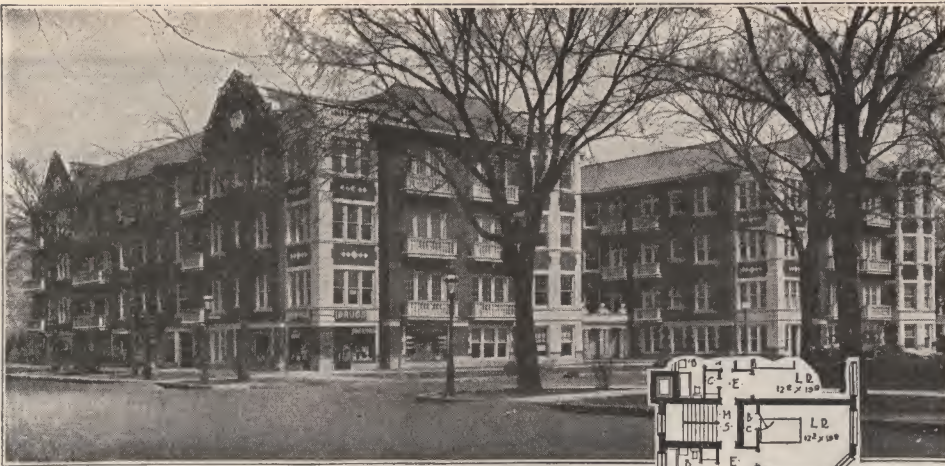
Please send me free samples and descriptive literature on Ex-Wo-Lath.

Name of Firm.....

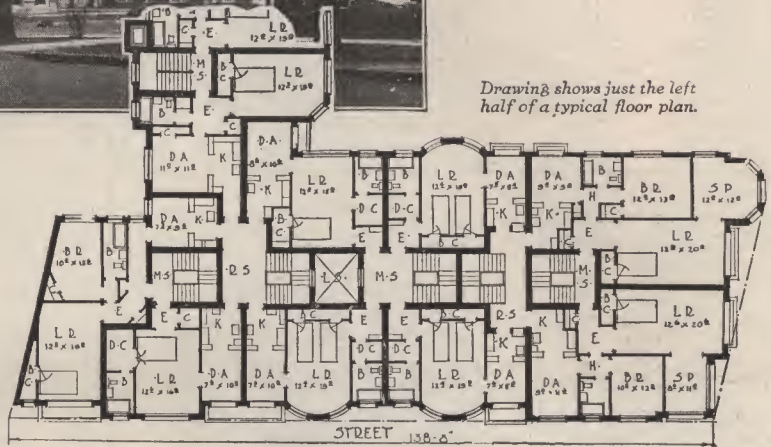
Individual.....

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Apartment Building in Rogers Park, Chicago.
Danielson & Erickson, Builders and Owners.



Two Ways to Conserve Floor Space

This building, on a lot 138' x 149', contains 18 apartments of 2, 3 or 4 rooms to the floor. It was possible to obtain this large number of units by the use of a special stairway scheme and Murphy In-A-Dor Beds.

The entrance to each apartment is through a lobby on the ground floor. By keeping the main and rear stairways on the inside, all of the outside floor space was saved for livable rooms.

By installing Murphy Beds, one room in each apartment was made doubly useful—a bedroom at night, a living room by day. This gives each tenant the advantage of one more room than floor space allowed.

Our service department is ready to co-operate with architects and builders on layout problems. Gratis, of course.

Write for examples of Murphy Bed installations and information about the Murphy Cabinet Ironing Board.

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Offices and Display Rooms in All Principal Cities

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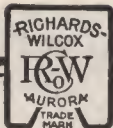
22 West Monroe Street, Chicago
469 5th Avenue, New York
1534 Blake Street, Denver

1410 Kresge Bldg., Detroit, Mich.
205 O'Connor St., Ottawa, Can.
Crocker Bldg., San Francisco
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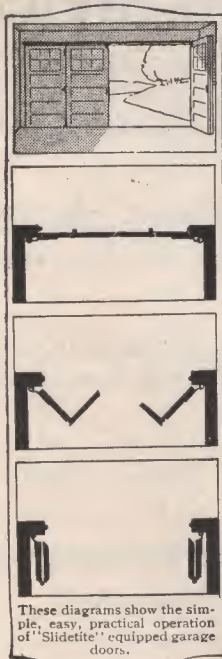
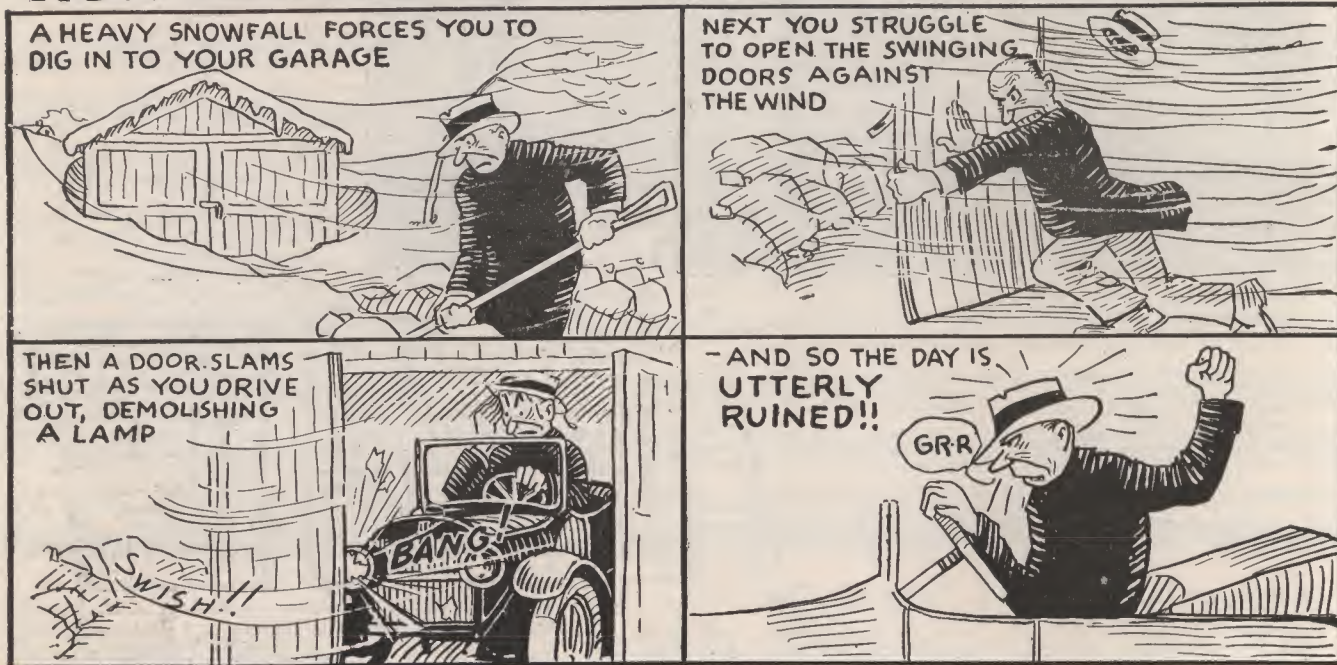
Chemical Bldg., St. Louis
Hoge Annex Bldg., Seattle, Wash.
1140-42 Hanna Bldg., Cleveland

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There's no better way to start the day wrong than to battle with old-fashioned swinging garage doors. They're hard to manage on windy days, and often stick and sag. After a heavy snowfall, you're forced to dig in to get your car out.

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HERE is a story worthy of study by Architects, Contractors, and Builders.

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The unusual "fatness" and plasticity of OHIO WHITE lubricate the concrete mixture, and make mixing and pouring much easier.

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Because of its peculiar chemical content, OHIO WHITE FINISHING LIME is unusually hard-setting, giving a permanent, smooth, white wall surprisingly free from checking and blistering. And the porosity of the wall enhances its acoustical properties, while the peculiar natural composition of the Lime is responsible for its metal-preserving and fire-resisting qualities.

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No matter for what purpose—luxurious theatre, hotel or office building, humble cottage or majestic bridge—OHIO WHITE LIME is ready to fulfill the unexpected—to do the seemingly "impossible."

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"The Lime Center of the World"



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It is a new catalogue of Ruberoid Weather-proofing Products. It describes several new Ruberoid Products that you will want to know about.

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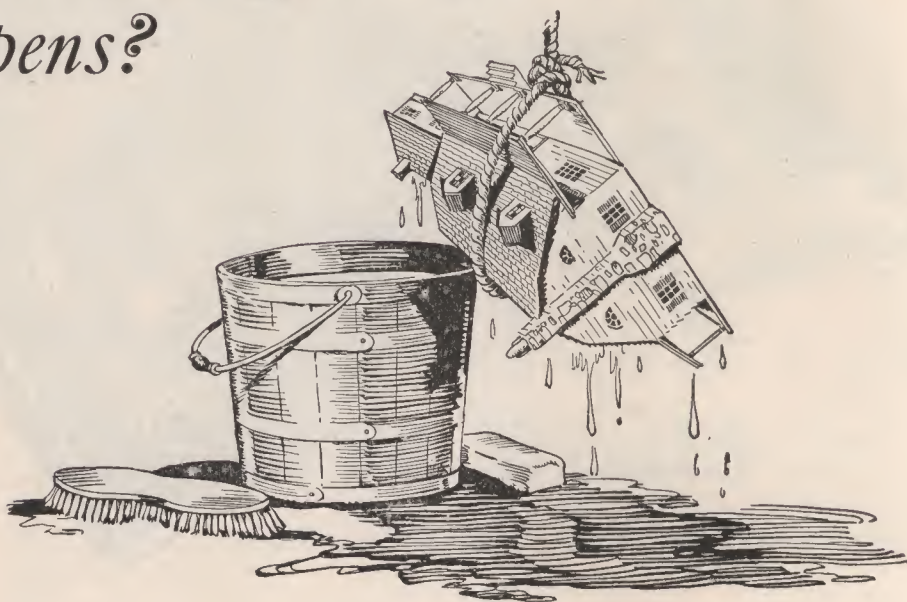
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House Paints

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Metal Paints

When a house gets a bath —*what happens?*



It all depends on the kind of paint that is on it.

Some paint washes off, little by little, with every rain. If the paint contains zinc, rain merely washes the dirt off.

Paint made with zinc produces a hard, glossy, enamel-like surface. It will not "chalk" and wash off, or blow off. Rain keeps it clean, but the weather cannot penetrate its moisture resisting film.

Builders whose specifications include paint mixed with



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can be sure of well protected jobs. Mapaz is our own pure Zinc Oxide ground in refined linseed oil. It is ground according to our formula by Master Painters Supply Co., Inc., 160 Front St., New York, Peaslee-Gaulbert Co., Incorporated, Louisville, Ky., Atlanta, Ga., and Dallas, Tex., U. S. Gutta Percha Paint Co., Providence, R. I. Booklet of mixing formulas and full information will be sent free on request by any of the above.

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Standardize on Smith Mixers



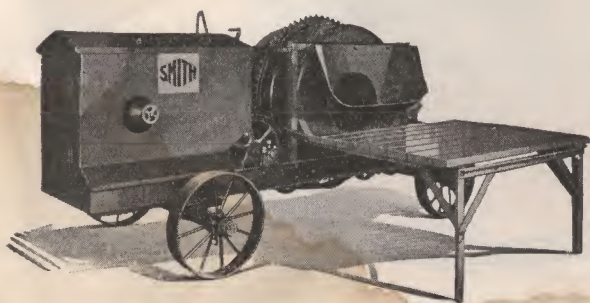
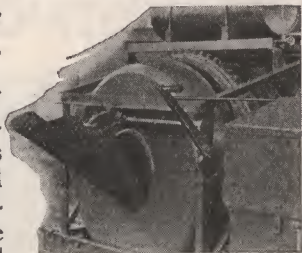
Smith 7-S non-tilting type mixer used for laying walks around statue of Civic Virtue, City Hall Park, New York City.

For Large and Small Jobs Smith 7-S Mixer

Any job not absolutely requiring the big tilting type mixer can be efficiently handled with the Smith 7-S Mixer.

It is a full bag, non-tilting type mixer, giving an easy day's output of 90 to 100 cu. yds. It is equipped with steel trucks or steel skids, with steam, gasoline or electric power or without power, with power loader or low charge hopper and platform.

One of its outstanding features is the newly designed mechanism for operating the discharge chute. As illustrated above, the operating lever is pivoted to a short arm that is keyed to the shaft to which the chute is attached. When lever is moved, a small roller, attached to end of lever, follows outline of a cam bolted to mixer frame. Except for the rod that extends across mixer to enable operation of chute from other side, these few simple parts constitute the complete discharge operating mechanism.



Pouring building foundation with Smith Half-Bag Tilter, owned by George Beck, Milwaukee contractor.

The Mixer of Multi-Purposes Smith Half-Bag Tilter

Using a Smith Half-Bag Tilter, one man poured a cellar floor in an unusually short length of time through the simple expedient of discharging the tilter directly through the cellar window. Another man saved time and the expense of using a larger mixer, by pouring a building foundation with the Smith Half-Bag Tilter. Still another used this small tilter for building a silo.

Although but a few months on the market, the Smith Half-Bag Tilter has fully justified our predictions that it would meet with widespread favor. New and old users of Smith Mixers who have purchased one of these small mixers have found it ideally adapted for general use. New uses like those mentioned above are constantly being found—these in addition to such regular work as laying sidewalks, curbs, culverts, retaining walls, dams, etc.

The Smith Half-Bag Tilter—with its mixed batch capacity of 4 cu. ft., a full half-bag (1-3-6 mix) with materials containing the usual 40% voids—embodies all the fine qualities of the larger Smith Tilters—speed, accuracy, durability and dependable production.

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TROUBLE SAVERS

Increase Your Profits

*Use "Trouble-Saver" Steel Scaffold
Brackets on all your jobs*

Scaffold safety and economy are guaranteed when Trouble-Savers are used. The absolute rigidity obtained gives the men that scaffold assurance that tends for more and better work. They feel as safe as though working on the ground.

Once you invest in Trouble-Savers your scaffold expenses, troubles and worries are over for all time.

Change that every job expense into a permanent investment.

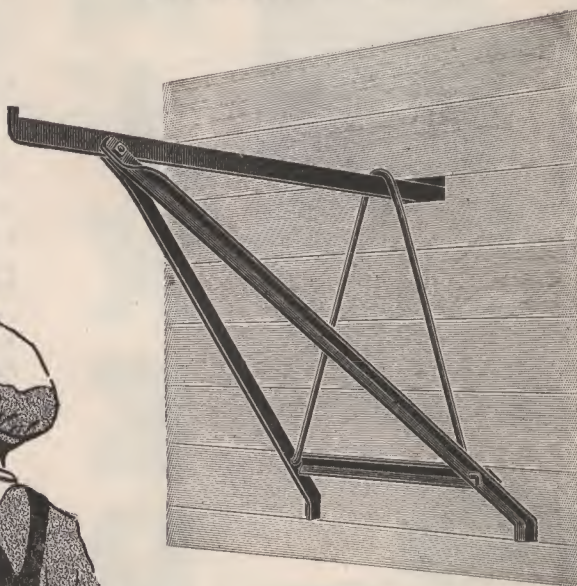
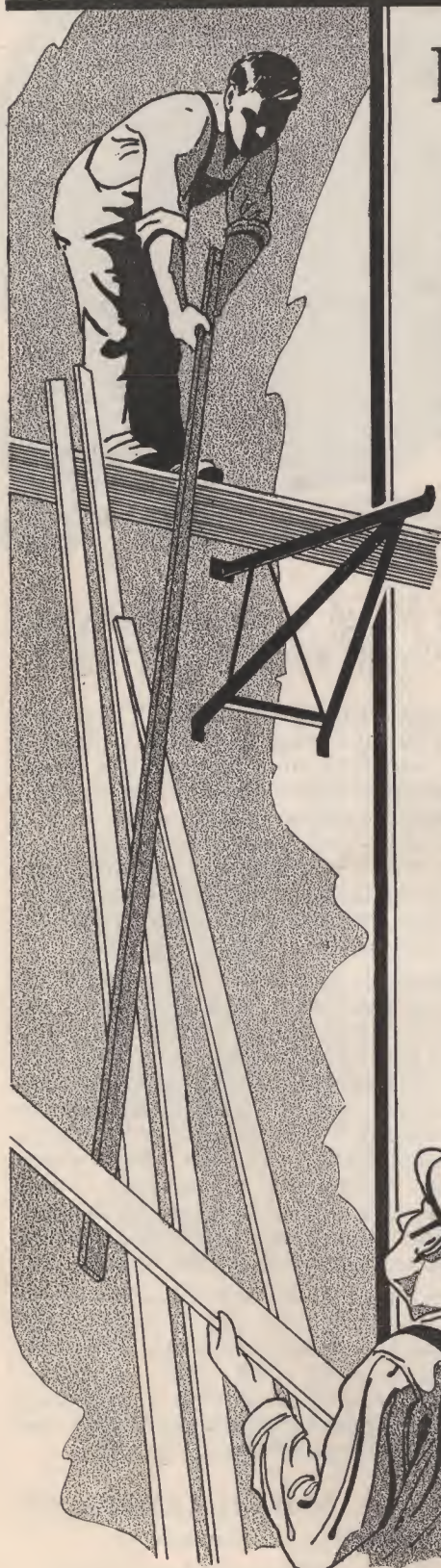
All "Trouble-Savers" fold for cartage and storage. Each one will support a ton.

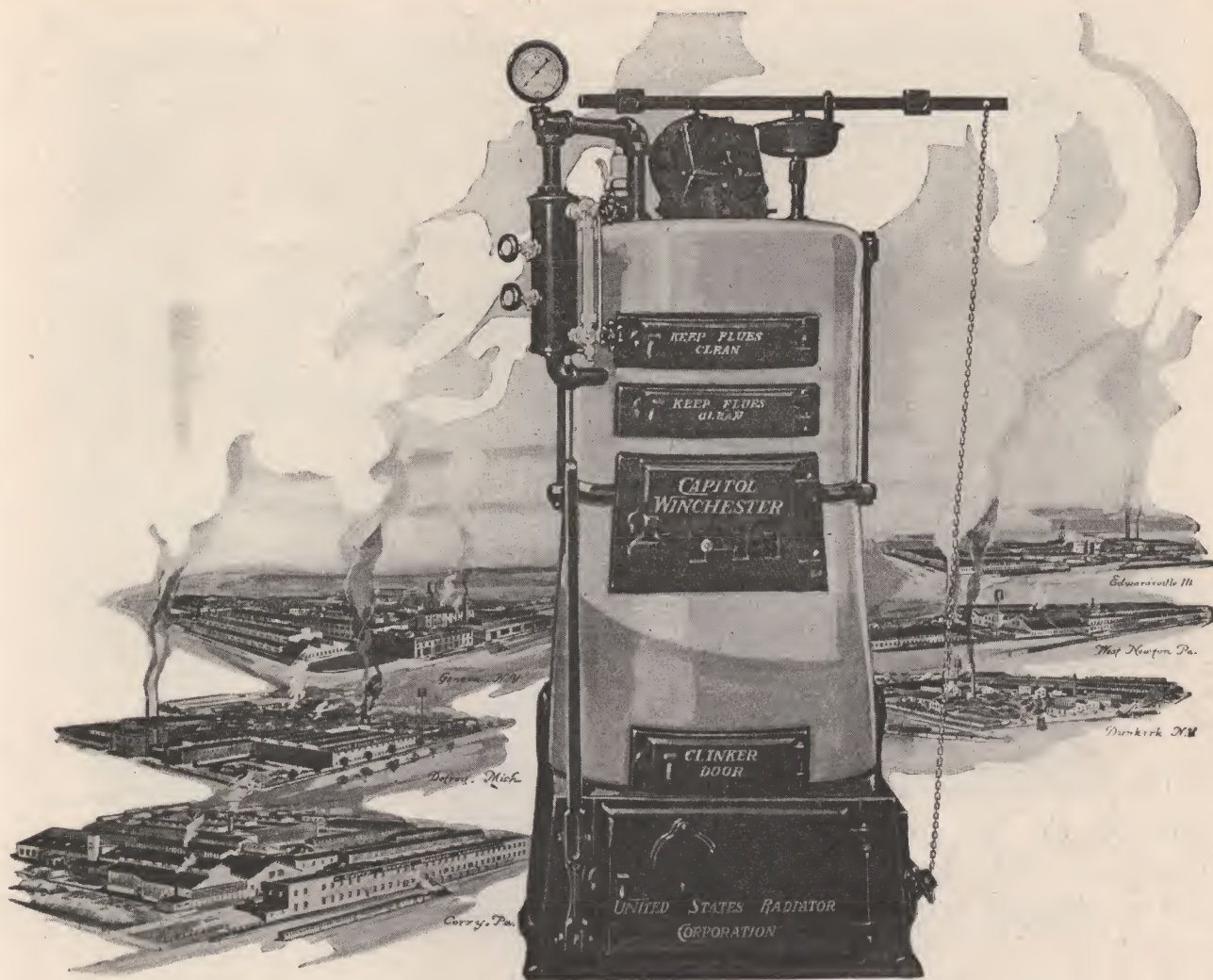
Satisfaction guaranteed or money refunded.

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Manufactured by

STEEL SCAFFOLDING CO.
EVANSVILLE, INDIANA





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The "Sterling" mark on silver is an infallible indication of quality. It stands for honest measure, full value and it is known to every man, woman and child in the nation.

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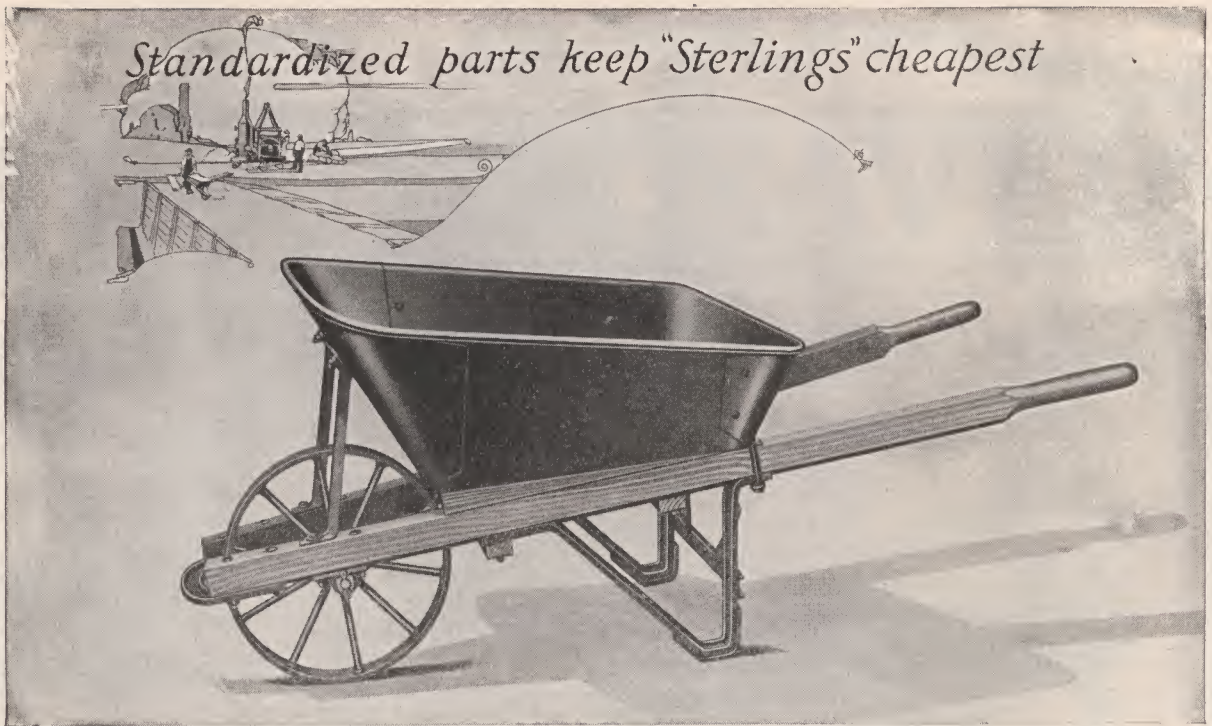
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Leg Shoe

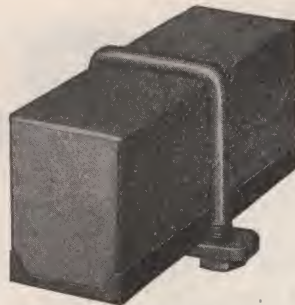
The mere matter of a shoe on the leg simply means you wear the shoe and not the leg.



This attention to details means a great deal to you in saving of repair costs and in added efficiency.

The handle clamps do away with bolt holds at the point of most strain—thus save handle breakage.

Handle Clamp



These improvements in construction add but little to the cost, but it puts Sterling barrows on a standard of quality.

Self-lubricating wheel bearings do away with the oil can and reduce the effort of wheeling—ask your foreman.

Wheel Bearing



The longer the service the better "Sterlings" show by comparison because they are made right in every part.

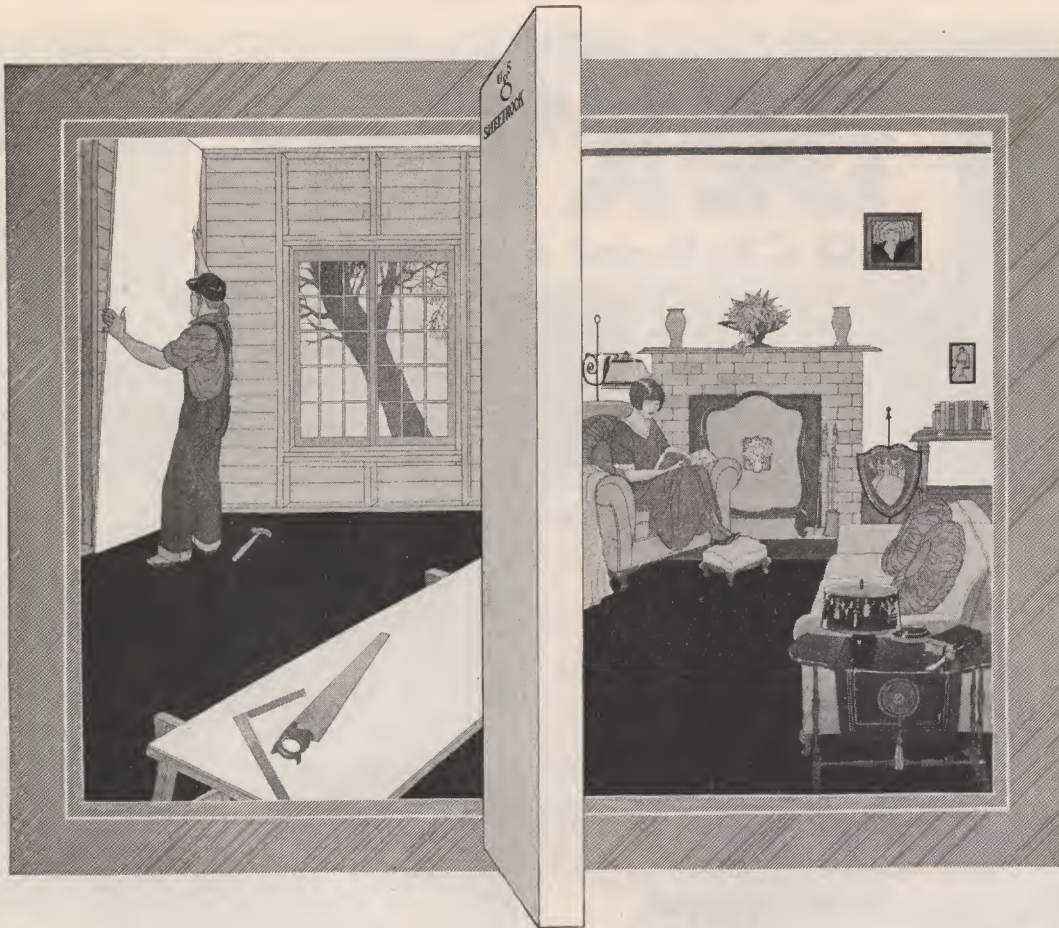
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Sheetrock comes in standard sizes: $\frac{3}{8}$ inch thick, 32 or 48 inches wide and 6 to 10 feet long

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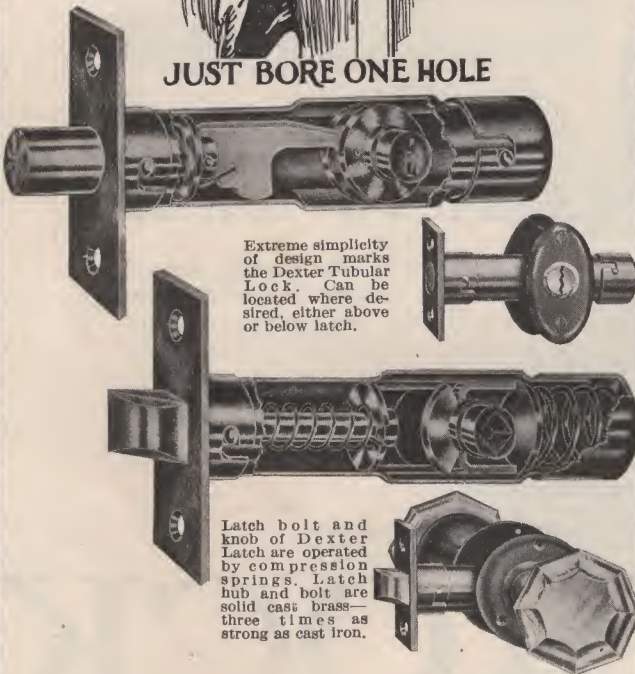
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Extreme simplicity of design marks the Dexter Tubular Lock. Can be located where desired, either above or below latch.

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DEXTER Locks and Latches provide the utmost in utility, convenience, appearance, ease of installation and simplicity of construction ever contributed to the satisfaction of the home owner and builder. Lock and Latch are at the correct height. Can be fitted to any door. Just bore holes and attach. Write for full details. Sold by hardware dealers. If no dealer in your territory, your requirements will be taken care of direct from factory.

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GRAND RAPIDS, MICHIGAN

Made in Canada by Dexter Lock Co., Hamilton, Ont.



Open to New and Old Subscribers--Renewals Extended for One Year

Make Big Money

by being a

Successful Contractor--Big Architect--Master Builder

IF YOU take one moment now you can easily recall at least one man who reminds you of this picture. Day after day he goes steadily forward, doing larger work, becoming more prosperous. When he had the chance he seized it. He rose above men no better, no smarter, no more able than he because he early realized that study of his chosen work enabled him to forge ahead. One by one he passed his fellow workers to better and more profitable work. He heeded the beckonings of opportunity. He is **THE SUCCESSFUL CONTRACTOR--THE BIG ARCHITECT--THE MASTER BUILDER.**

You don't want to stick to the plane, the saw and the hammer all your life. If you are a contractor or a builder don't you want bigger work than just barns, sheds and now and then a house or two?

If you are a draftsman, an apprentice or assistant in an architect's office you don't want to remain in your present position any longer than you have to; you want to make your present work a stepping stone to a bigger position, which will be your life's work.

You don't want to stand still and see your friends step ahead to enjoyable, well paid, independent work simply because they "snap up" the same opportunities, the same chances that are offered you. It is the natural ambition of man to not only keep up but step ahead of his fellows.

The only way that you or any other man can keep up--become A **SUCCESSFUL CONTRACTOR** -- A **BIG ARCHITECT** -- A **MASTER BUILDER**--is through study--study of your chosen work. If there is a certain part of your work that you don't thoroughly understand then sometime when that kind of work has got to be done, some other man is going to step in ahead of you and do it. He learned how. Knowledge is the great leveler. There is no true independence where there is a lack of training.

You have the chance now within your grasp to get the necessary training. This is an absolutely direct appeal to you. No matter how good a position you hold now--no matter how much work you are getting--no matter how well you are paid for it--this holds as much interest for you as for the man who is actually looking for work.

At no risk to you--without the slightest obligation on your part --we offer you the really great opportunity of perfecting yourself in your life's chosen work. Don't pass this page by until you have made up your mind to give the rest of this careful study. Look at the picture again at the bottom of this page. Look at it carefully. You owe it to yourself and to those dependent upon you to take advantage of every possible chance of bettering yourself.

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A Successful Contractor--A Big Architect
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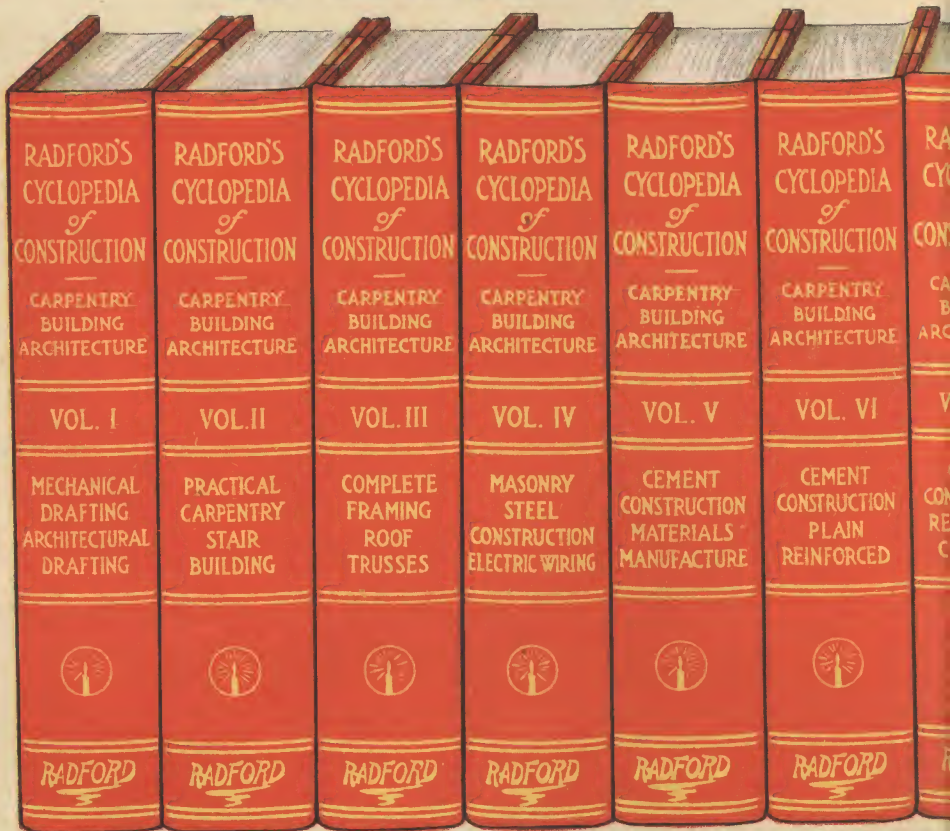
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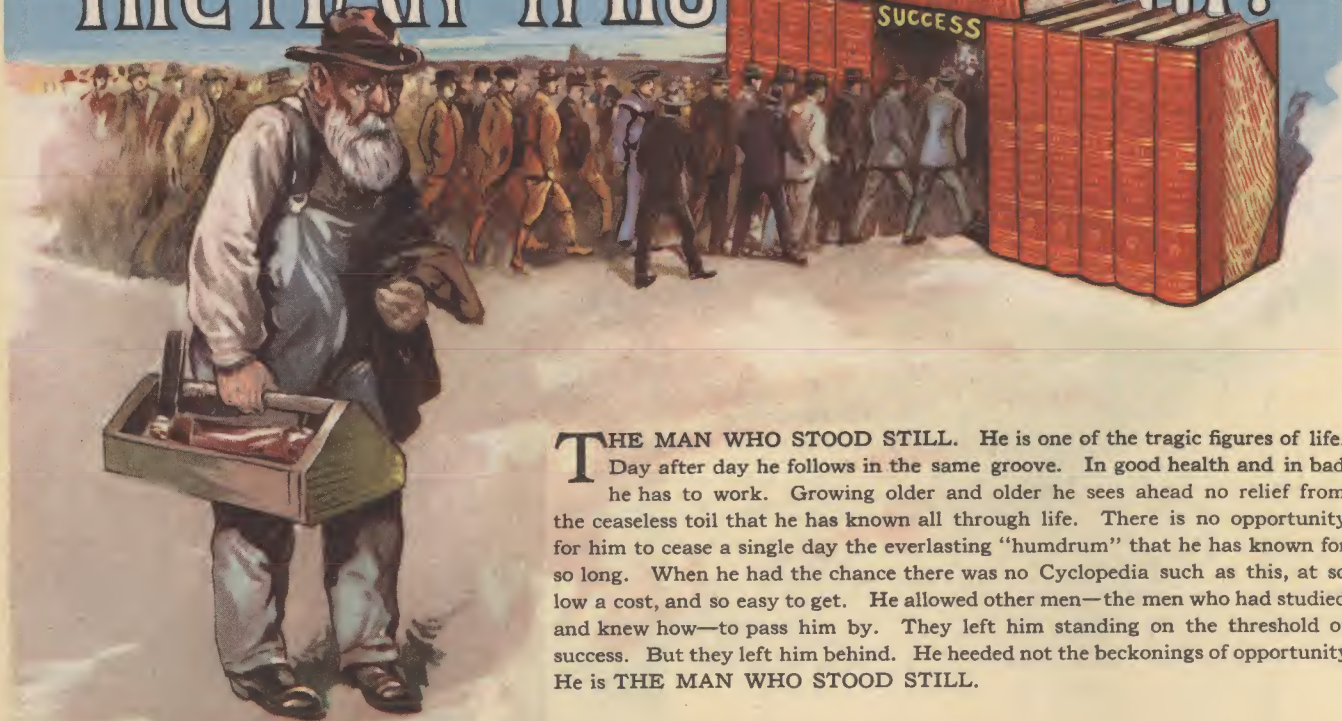
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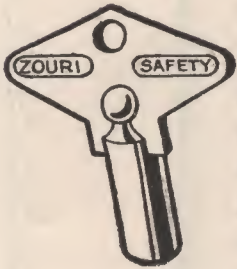


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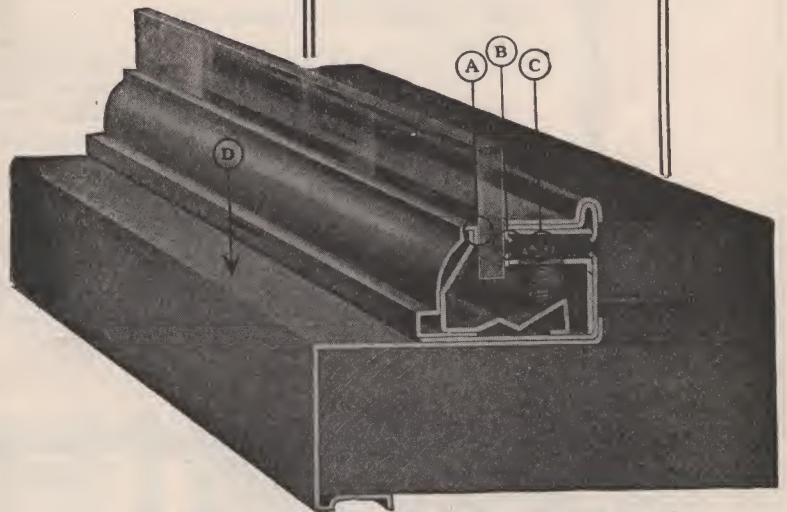
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There's a distributor near you who will post you without obligation. Ask us for his name.

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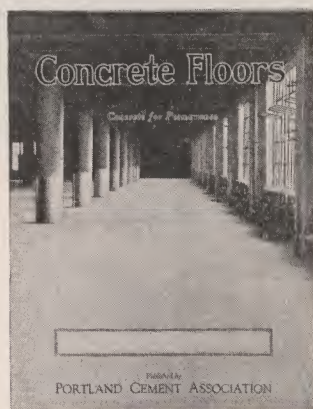
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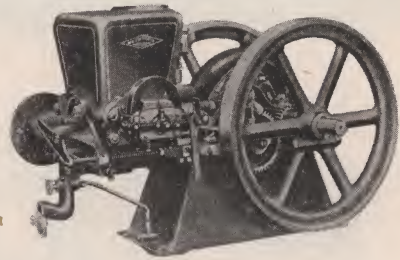
This information is given simply, and in full detail, in our booklet, "Concrete Floors." It is a practical, how-to-do-it-on-the-job book, and you will find it worth many times the minute or two you spent in asking for it. Address our nearest District Office.

And remember that the Portland Cement Industry, acting through the Portland Cement Association, offers "a service with every sack." This service, which costs you nothing, can save you money. Take full advantage of it.

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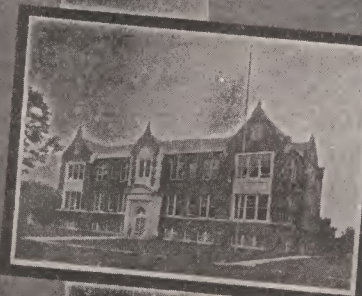
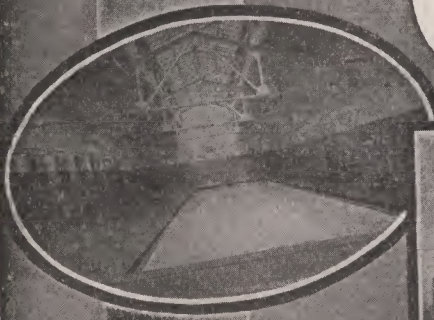
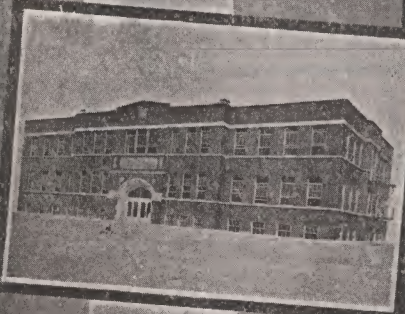
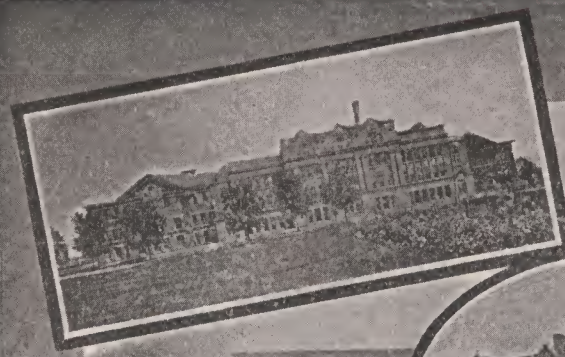
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Carney Lays The Strongest Walls

CARNEY mortar becomes harder in the wall than the brick or tile it binds. It grips the bricks like a steel vise, making one solid piece of masonry from foundation to roof. Carney walls stand though the building be gutted by fire. Examine a Carney laid wall and you will fully realize how strong it really is.

Carney Has These Exclusive Merits

It can be used directly after mixing or left in the box over night. There is no waste to Carney. It requires no lime, which saves time and labor in mixing. It prevents loss and waste through carelessness. Being more plastic and smoother working, the mason can work faster and easier on the wall. It lays the maximum number of brick to the barrel. It is ideal for wall bearing buildings. It becomes harder than the brick and tile it binds, continuing to harden indefinitely as time goes on. It sets a creamy white, contrasting beautifully with brick and tile. The final cost of a Carney wall is always lower. Contractors bid lower, do better work and make more profit with Carney.

Carney is a perfected cement for brick and tile mortar.

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Cement Makers Since 1883

Mankato, Minn.

Mills: Mankato, Minn., Carney, Minn.

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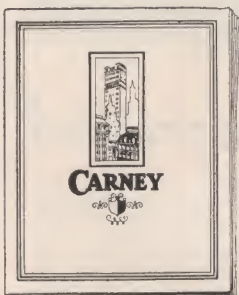
CARNEY

for Brick and Tile Mortar

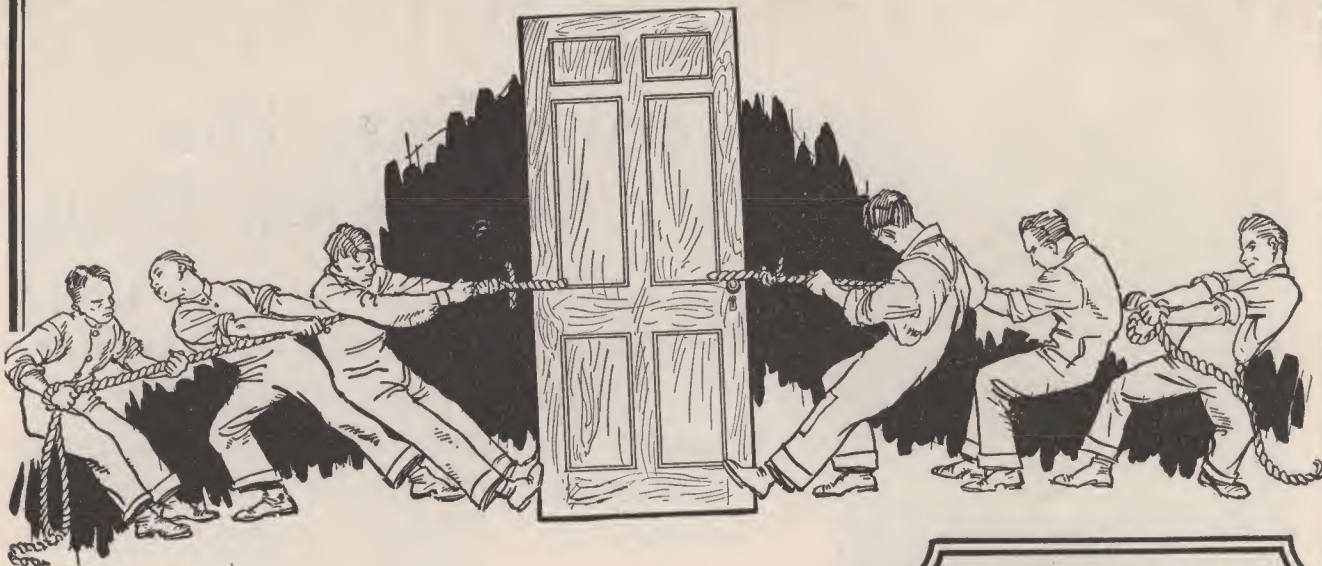
Specifications: 1 part Carney to 4 parts sand.
(due to refined process of manufacture.)



Jefferson Standard Life Insurance Building at Greensboro, N. C. Contractors all over the country use Carney for brick and tile buildings because it fulfills every requirement.
Architect: C. C. Hartman, Greensboro, N. C.
Contractors: Geo. A. Fuller Co., New York City.



This book tells the complete story of Carney. It will be sent free to anyone interested in building.



It Takes a 2½ Ton Strain To Break a Curtis Door

ALMOST "all the king's horses and all the king's men" are needed to break a Curtis door, so strongly is it put together. Straight-grained, flawless hardwood dowels join the stiles and rails together. The dowel is grooved to allow the air in the hole to come out and the glue to spread evenly. After a door is finished, it is machine sanded and reaches the job almost ready for the painter.

Both veneered and solid Curtis doors are equally well constructed and inspected. The trade-mark, shown at the bottom of the page, is stamped on the bottom.

All Curtis woodwork is turned out with the same refinement of manufacture and careful selection of lumber as these doors. Curtis Standardized Woodwork was all carefully designed by Trowbridge & Ackerman and will meet any architect's specifications.

Let us send you a copy of "Interior Doors and Trim". The miniature catalog will be a valuable aid to you in your selling.

The Curtis Companies Service Bureau
611 Curtis Building, Clinton, Iowa

Curtis Companies, Incorporated, Clinton, Iowa

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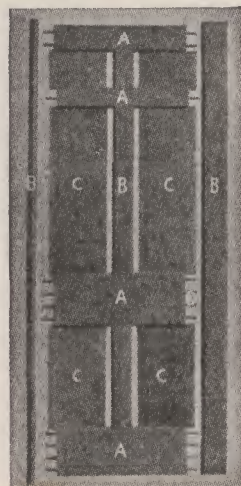
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Curtis Woodwork is identified by the mark at the right. Whatever you buy—sash, door, molding, or interior woodwork—see that it bears this trademark. Curtis Woodwork is sold under the "1866 Curtis" trademark by retail lumbermen east of the Rockies.

1866
CURTIS

"We're not satisfied unless you are." Every month in the year the Curtis story is told to millions of readers in such magazines as: The Saturday Evening Post, Ladies Home Journal, American, House and Garden, House Beautiful, and Country Gentleman; also in Sweet's Catalog.

(2137)



In the above picture is shown a Curtis door before it is assembled by an automatic clamp. See the length of the hardwood dowels, insuring perfect joining.

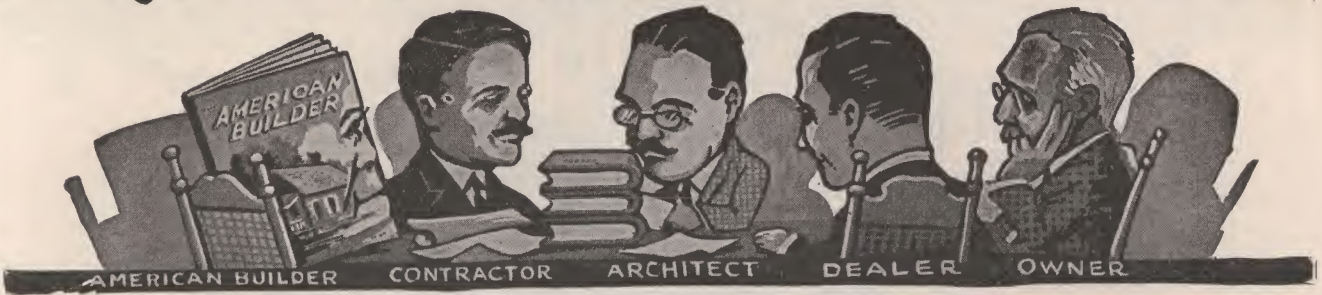
The illustration below is a section of a hardwood door stile. A is a ½ inch strip of veneer. B is a ¾ inch hardwood edging strip. C is the white pine core. Note how the core blocks are tongued and grooved to hold in position. They are glued together.

The Curtis Companies Service Bureau
611 Curtis Building, Clinton, Iowa
Please send me a copy "Interior Doors and Trim."

Name.....

Address.....

AROUND THE FAMILY TABLE



Yes, We Are Thankful

THIS is the month when Dad must not only bring home the bacon, but the turkey, too. (Personally we would just as soon have a duck or a goose or a nice fat pullet; yes, or a brace of quail or partridge.) All in all, this has been a pretty good year for Dad, especially if he is in the building business. And that means it has been a pretty good year for everyone else, because somehow you can't disassociate active building from active prosperity.

More residences have been built to date this year than in any previous year. The railroads have carried more carloads than in any other year. There is more money on hand in the shape of savings accounts and bank drawing accounts than ever before. Poverty we always have with us, because human nature is always variable, but it is not saying too much to state that there is less actual poverty than ever before.

Verily, we have cause to be thankful.

Look across the water: Race hatred deep as a mine shaft, that makes our ordinary American variety look like a lollipop love-fest; military extravagances that are eating into the welfare of generations yet unborn.

Here we can eat our Thanksgiving meal in peace, with nothing to worry about but our digestion.

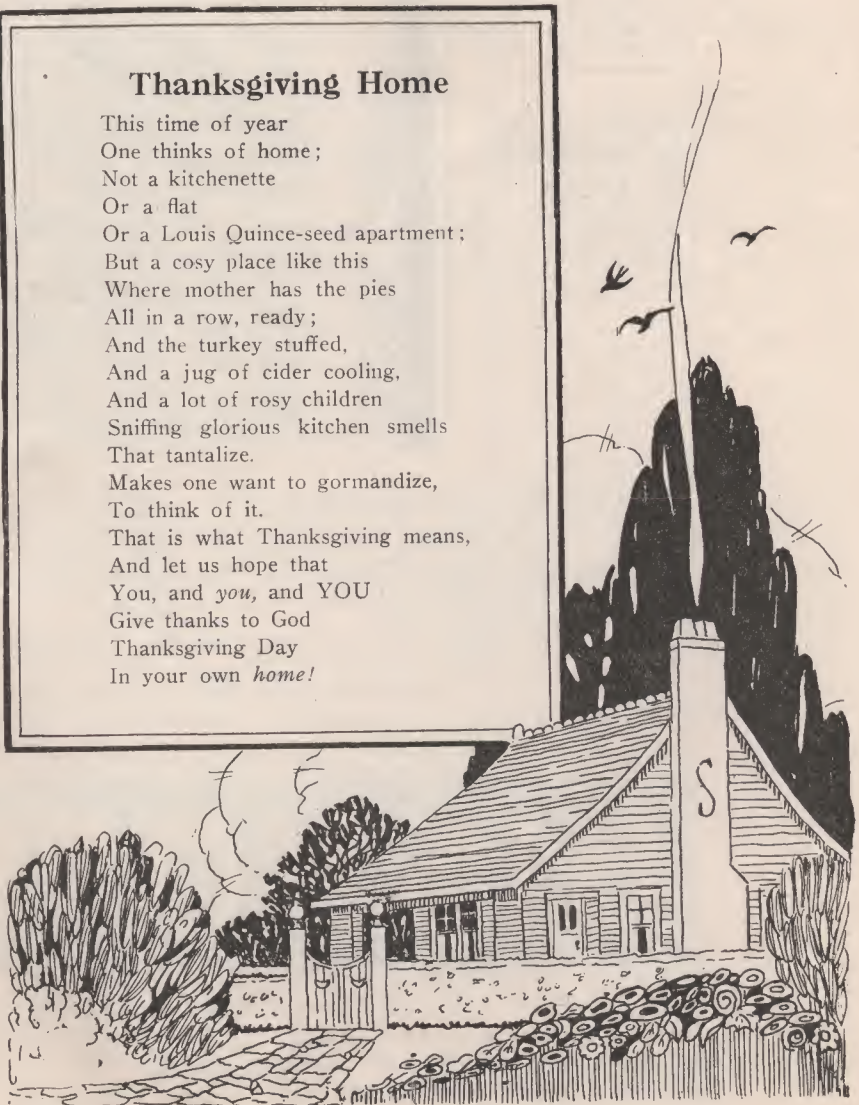
The prospects for the next year are very good. We can reasonably expect a decline in rental values as building catches up with itself. In the cities especially the ever-increasing number of apartment hotels will contribute to a lowering of too-high rentals for the room space occupied. Residential structures may decrease slightly in

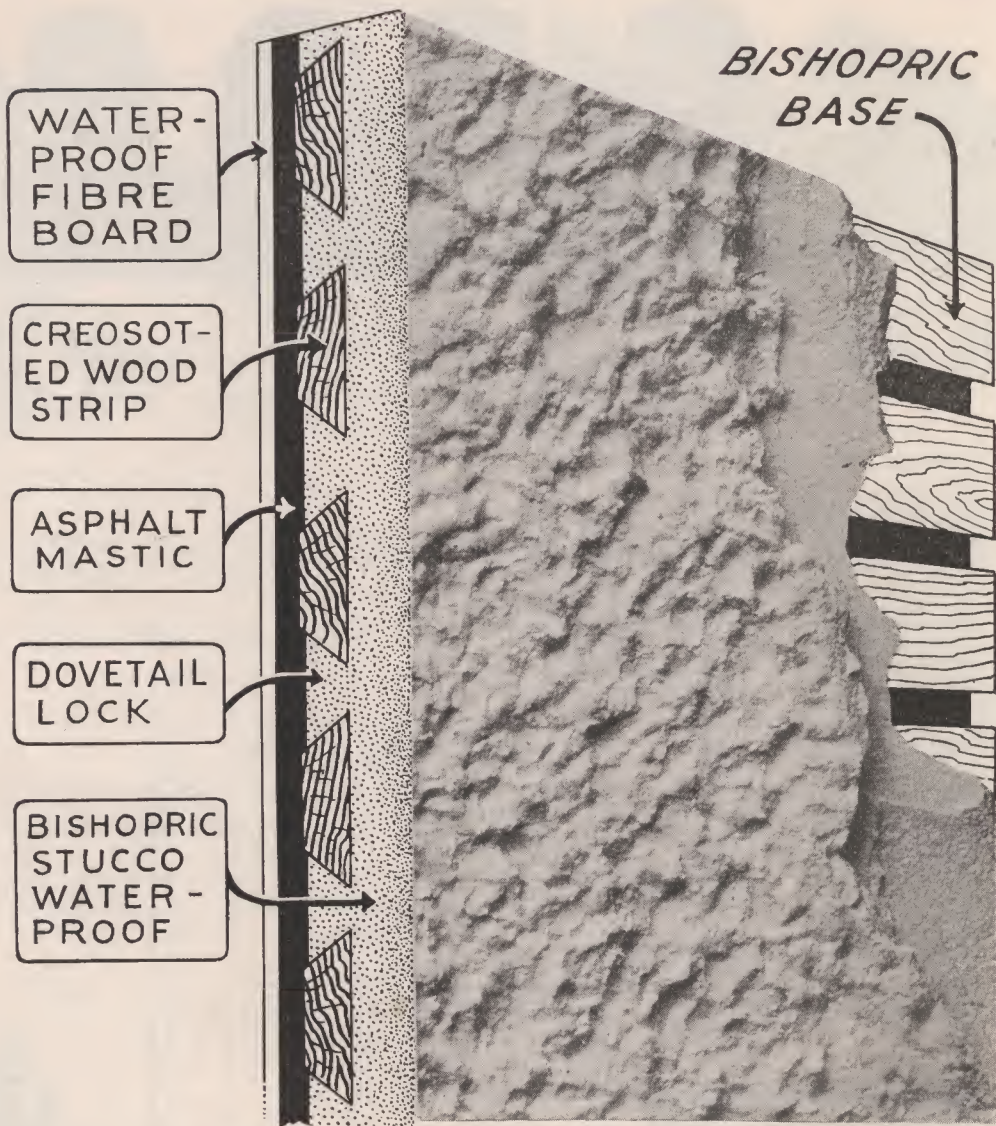
value, but if built wisely in proper locations the increase in property value will more than offset such depreciation. Farmers are over the adjustment period of fall finances and ready to consider necessary building for next year. Everything looks rosy for the man who makes, sells and uses building materials.

It is our best wish for the big AMERICAN BUILDER family that each member, looking back now, and also looking ahead, may see much for which to be truly thankful.—THE EDITOR.

Thanksgiving Home

This time of year
One thinks of home;
Not a kitchenette
Or a flat
Or a Louis Quince-seed apartment;
But a cosy place like this
Where mother has the pies
All in a row, ready;
And the turkey stuffed,
And a jug of cider cooling,
And a lot of rosy children
Sniffing glorious kitchen smells
That tantalize.
Makes one want to gormandize,
To think of it.
That is what Thanksgiving means,
And let us hope that
You, and you, and YOU
Give thanks to God
Thanksgiving Day
In your own home!





BISHOPRIC BASE with its interlocking dovetailed key is an exclusive, patented base or background for stucco. It is a specially designed product, built up of selected and seasoned wood strips, set in a heavy layer of asphalt, on a pure, wood fibre base. As an insulating, strengthening, sound-deadening, moisture-proof and fire-resistant base, it insures a building that is absolutely dry, vermin-proof and healthy.

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VOL. 36

November, 1923

No. 2

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AN INVITATION TO YOU

The AMERICAN BUILDER cordially invites and urges you to enjoy the privileges and benefits of its Correspondence Department. Any phase of any building question may be profitably and instructively discussed in this department. If your problem is a knotty or technical one submit it to the Correspondence Department and secure the benefits of the opinions of other experienced builders. It's a "give" as well as a "take" department, and you are asked to relate your achievements and tell how you have conquered difficulties as well as to ask for information and advice. Rough drawings are desired, for they make clear involved points. We will gladly work over the rough drawings to meet publication requirements. The Correspondence Department is your department. Use it freely and frequently.

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FRIENDLY CHATS *with the* EDITOR



To Salvage the Great Wealth of the South's Cut-Over Lumber Lands

THE greatest constructive development ever undertaken in the United States bids fair to crystallize into definite action at New Orleans during the present month. On November 19 and 20, at the Hotel Grunewald, the Executive Committee of the Conference on Forestry, Reclamation and Home-Making will meet and make definite plans for the reforestation and bringing under grazing and small-farm cultivation over 76,000,000 acres of cut-over timber lands in the lumber belts of the southern states.

Among the notable speakers of the occasion will be John H. Kirby of Houston, Texas, the president of the Southern Pine Association. The ownership of the great cut-over area is largely in the hands of the lumbermen. They realize that a great responsibility is theirs, and the question of what they shall do with their vast holdings is one that has been growing more serious with each passing year. It is creditable to the lumber interests that they are pulling together with the states and the Federal government for the very real present and future reclamation and development of an area which in any other country would parallel the redemption, almost, of an empire.

The eastern parts of Texas, Arkansas, southern Missouri, Mississippi, Louisiana, Alabama, western Georgia and western Florida all go to make up this immense area. Of the 76,000,000 acres and over, approximately 15,000,000 are suitable for agriculture; the balance for grazing and reforestation.

One may vision the immense wealth latent in these cut-over acres by considering what has already been done in some of the states concerned. In Louisiana some of the cut-over land has been made to yield an actual yearly revenue, per acre, of \$1,000; in some cases as high as \$2,000. Even without reclamation, intelligently regulated live stock ranging and grazing makes this cut-over land yield about \$50 cash value per acre. The lumber companies have already helped settlers through furthering the stocking of farms with pure-blooded stock, all varieties of which do well in the South. The grain, cotton, vegetable and truck farming possibilities are equally good, and with the gradual taking care of financing and transportation problems

and the encouragement of good northern states or European farmer immigration the pendulum of increased agricultural and industrial prosperity is bound to keep swinging back to Dixie.



Colors Influence Us More Than We Think

THERE is a very interesting article in the current issue of the Dutch Boy Quarterly by D. D. Louis Ireton, on the influence of color. Color—therapy, or photo—therapy as it is otherwise known, has been practiced for years in European hospitals, but only in the past decade has any practical application of it been made in this country. It has not yet reached a point where it may be classified as a science, but it has been proved beyond a doubt that various types of neurasthenic patients are profoundly influenced by color. It quiets and controls the over-wrought and has a stimulating effect on the melancholy.

One very remarkable and interesting experiment was that of one of the western female reformatories. The inmates came from all walks of life and were confined for various causes, some for life. The superintendent, a woman physician and psychologist of note, decided on taking charge to apply a color treatment in the interiors of the buildings occupied by her charges. She segregated them according to age and temperament, and permitted them to select such colors as they felt would be most pleasing and inspiring. During the four years of this practice she has not found it necessary to use forcible restraint, and no locks, bars or bolts are known in that institution. The inmates have the greatest freedom as a result, and live on as one happy family. When the time for parole or discharge arrives they very reluctantly leave. In a certain state penitentiary systematic color treatment on nervous and troublesome prisoners was so successful and practical it was extended throughout the institution.

Study out why you have a favorite color, and why you dislike other colors. Many a red dining room has led to a blue divorce court.

PICKFAIR, The Home of Mary Pickford and Douglas Fairbanks

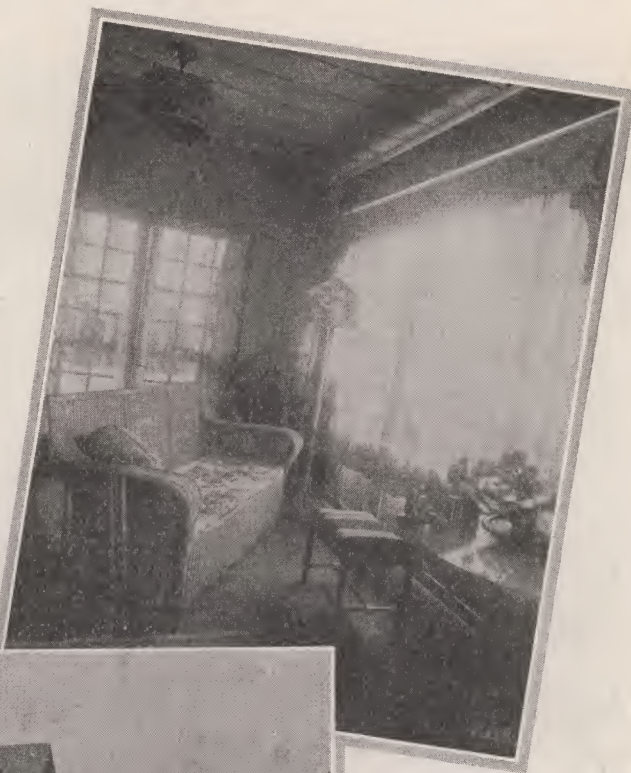


Not a Jarring Note mars the Perfect Good Taste of This Handsomely Appointed Reception Hall.

A MERICAN BUILDER is privileged to present to its readers these remarkable views of "Pickfair," the home of Mary Pickford and her husband, Douglas Fairbanks. Every detail will repay most careful study and yield stimulating suggestions.

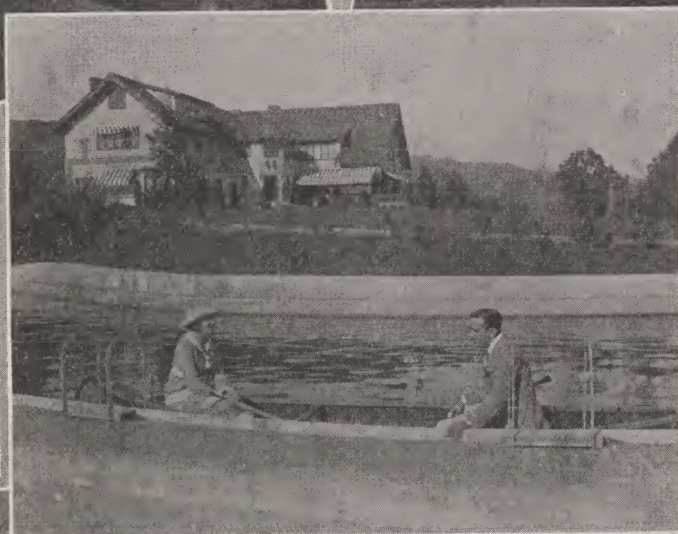


Above: A Corner of the Living Room. Observe this is built with the lofty ceiling which is becoming popular everywhere.



This Sun Room with Its Sunlight May Be Responsible for Much of Mary Pickford's Sunny Disposition.

Mary and Doug Taking a Boatripe in the Pool.



Every Prospect Pleases at "Pickfair."



A Corner of the Living Room with Built-in Bookshelves and Comfy Chair and Lamp Inviting a Browse.



The Dining Room at "Pickfair." There is a splendid mural seascape over the fireplace mantel.



A Corner of the Living Room, "Pickfair"

The Tinting of the Paneled Walls Is in the Highest Degree Tasteful and Restful. The window over-drapes are relied upon to strike the color note. The lighting fixture, too, is in keeping with the interior.

Glimpses of "Pickfair," the Home of Mary and Doug.



The Entrance to "Pickfair." Intelligent landscaping has made this pergola-hung terrace a bower of beauty.



The Breakfast Room at "Pickfair" Is Calculated to Send One Forth Smiling to the World and Studio.

Mary and Doug Agree That There Is No Place Like Home.



Good, Substantial Architecture Characterizes "Pickfair."



The Fireplace in the Living Room Represents the Acme of Comfort and Surely Invites the Visits of Dear Friends.



Mary Pickford's Boudoir. Thoroughly dainty and feminine and in perfect taste, as is everything else at "Pickfair."

Adobe Architecture

A Great Revival of Adobe Buildings in the Southwest with a Taste for Pueblo Architectural Designs

By B. F. CLARK

IT is impossible to say just when semi-civilized man began to use adobe for building purposes, but travelers and history tell us that it was used several thousand years ago in ancient Egypt, Assyria, Peru and Old Mexico. But, from what is now known, it may have been first used by the Cliff Dwellers, or Pueblo Indians. For near these Pueblos, in what is now known as New Mexico and Colorado, first Spanish invaders discovered very old ruins of poured adobe which had been made by piling one row of stiff adobe on another, and perhaps smoothed down with a flat stone, as a modern mason uses a trowel.

The Spanish, however, after gaining possession of this country introduced the adobe brick which soon became the leading building material, especially on the prairies and plains. The Pueblo Indians were quick to adopt this mode of making adobe brick, and now their towns are mostly, if not all, entirely constructed of this material. The popular sizes of these brick are 18x9x4 in. and 16x12x4 in. The material for making these adobe brick is usually taken from the basement, if the house is to have a basement, then it is mixed with straw, or grass and water in a large box and moulded in smaller boxes; then taken out and laid in small piles where it is left to dry in the sun for six or eight weeks.

The rule for laying these brick is the same as laying other brick, excepting in the construction of business buildings and two story houses, where the bricks are laid crosswise of the wall in order to obtain the desired strength.

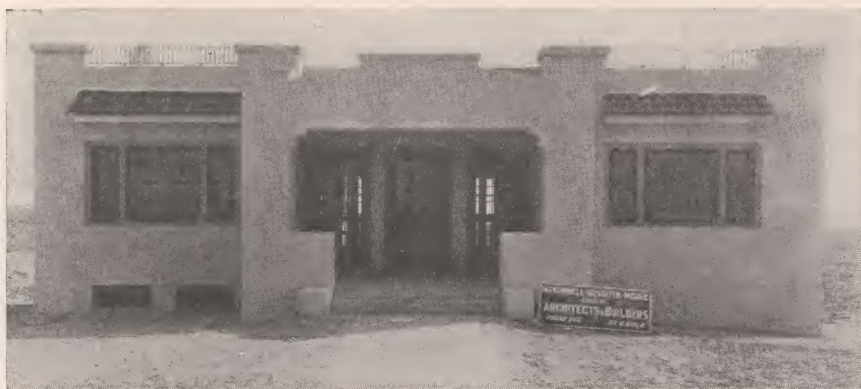
The adobe brick is one kind of building material which is not inclined to decay, where the walls are properly stuccoed. The old Catholic church which is said to be the second oldest church in the United States, and which stands in the little Indian town of Iseleta, speaks for itself. Though this building was stuccoed with nothing but adobe stucco, it has withstood the storms of hundreds of years, and still is in a good state of preservation.

The oldest church is in Santa Fe, N. M., and the third oldest one is in Albuquerque, N. M., and all of these buildings are still in good condition, and are built of adobe.

The high prices of building materials in the last few years has caused a revival of adobe buildings in such towns as Albuquerque, N. M., and judging from the fine modern bungalows, flats and store buildings which have been erected here the past year, the adobe brick is going to replace other building materials in these and other parts of the country. But, this revival in adobe construction is not due to the high price



This is the Old Museum, Santa Fe, N. M., a Building of Undefined Pueblo Architectural Design, and Constructed of Adobe Brick. Far from being a flimsy makeshift, adobe walls are well fitted for a museum. They are air-proof and fire-proof. Unusually heavy and strong they will withstand any wind short of a cyclone. They give a fine mellow texture to the walls, do they not?



This Is a Modern Apartment House, Constructed of Adobe Brick, Typical of Many Others Erected in Albuquerque, N. M., the Past Year. Naturally the smooth finish of the walls results from the use of stucco.

of building materials alone; builders and architects are learning more and more how to construct such buildings so they will be more moistureproof and ornamental. The best adobe buildings now under construction are being stuccoed with patent stuccoes of all kinds. The adobe bricks are being laid in sand and lime mortar, tempered with cement. This mortar is used freely, the joints being made heavy, and the end joints well smeared both on the in and outer walls. This tends to hold the plaster and stucco, and the strength of the mortar penetrates the adobe, which also tends to make it more durable and hard.

Adobe brick have many desirable qualities which no other building material has. Adobe walls, when plastered, make the deadeast wall that can be made. A house built of this material is unusually cool in the summer, and being absolutely air-proof, it is unusually warm in cold and stormy weather. Walls built of the material are not only fireproof, but being very heavy and strong they will withstand any wind excepting a cyclone. Another good feature about these bricks is that they may be cut in any shape after they have been dried, or laid in the wall. Concaves and niches of peculiar sorts may be cut in fire walls in flats and business buildings, then stuccoed over, leaving an artistic effect. Buttresses of beautiful design and porch columns are also made by cutting and carving after the walls are laid.

Then there are the interior decorations, ornaments and necessities in the construction of above which cannot be excelled. Odd and ornamental fireplaces, long bracket shelves and mantels, panel and inte-

rior cornice work, may be built in or cut out to suit the artist, then plastered over and painted. There has been but one undesirable feature about adobe bricks as a building material. And that has been only in wet climates, where adobe walls were put up in adobe mortar, and stuccoed with the same material, which admitted dampness. But even in damp climates this undesirable feature is being overcome by using common crude oil in the first coat of stucco.

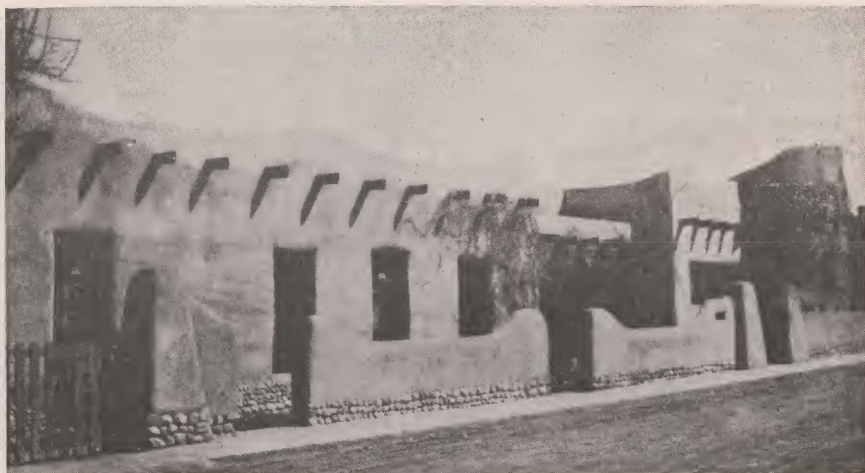
The greatest building year in the history of Albuquerque, N. M., was in 1922. Proof of this statement was obtained from the building inspector, Earl Bowdich, who has figures to show that during the year of 1922, permits calling for an expenditure of \$1,690,340 in building inside the city limits alone were issued.

About one-third of this sum was for residences; and according to statements obtained from contractors nearly one-half of these residences were constructed of adobe, and a goodly part of the smaller store and business buildings were constructed with the same material. It will be seen by some of the cuts accompanying this article that the architecture is of a peculiar design. This is what is known in a number of the western states as Pueblo Architecture. But, in a stricter sense, it might be more proper to call it Pueblo and English architecture combined. For, while most of the architects in these

localities have a taste for Pueblo art in home building, they are striving to steer clear of the commonplace



Adobe Bricks Being Cured in the Sun. Looks like some new-fangled pavement—or maybe fudge!



This Is a Block of Adobe Dwellings Built and Inhabited by Pueblo Indians. While they knew how to construct adobe dwellings in a crude way, adobe brick is one of the few things the Spaniards left the Indians to be thankful for.

by using a certain amount of originality in their styles.

In the picture of the three story business building will be seen a considerable amount of Pueblo architecture. The architectural feature of this building is characteristic of the styles of the business and resident buildings in the Indian Pueblo, which are scattered here and there in some of the western states.

Pueblo architecture, in the strict sense of the word, began with the late Cliff Dwellers. One looking at the crude homes of these ancient Cliff Dwellers built high upon the cliffs, with narrow pathways and stone steps or ladders leading from one shelf rock to another, cannot help but discover a taint of what is now called Pueblo architecture.

In the picture referred to above will be noticed in front adjoining the foundation, an oval structure which might be taken for a dog house. But this represents a Pueblo bake oven. The Pueblo women like to do

the most of their work in the open air, hence they build their bake ovens on the outside of their dwellings.

Notice the crude steps running from one story to another on the outside of this building. Also, the wooden ladders, the round lookouts projecting out thru the outer walls. These lookouts run clear thru the house and form the floor and ceiling joist. The joist are left exposed on the inside and form rustic beamed ceilings.

Now observe the plazetas, the recesses or little odd balconies on the second and first floors of this building. Then if you have never been fortunate enough to behold the homes of some of the ancient Cliff Dwellers, obtain a picture of one, and compare it with the picture of this building, and you will observe a faint likeness between the crude natural art of the one and the architecture of the other.

No doubt about the appeal of adobe brick.

Well-Planned Restaurant Building

By CHARLES ALMA BYERS

THE importance of having one's place of business, no matter what its character or how small it may be, present an attractive street appearance is steadily becoming more and more generally recognized. A building that in itself draws the public's attention is, in fact, one of the best advertising signs one can put up.

The small restaurant building illustrated herewith has, as will be seen, a front that is certain to attract favorable attention from passers-by. Carried out in quite distinctive style, the front is finished in rough-troweled cement-stucco, which is painted in a light shade of old blue, and the roof of this portion of the building consists of dark-red tile. There are two front entrances, the main one of which is of especially interesting design. Its doorway, with a narrow panel-style window on either side, is set in a staff-work, or cast-cement frame, which is artistically patterned and tinted in dark blue on a deep cream field; and over the door is a small octagon-shaped and pointed hood, comprised principally of opaline glass. The other doorway is provided with a less pretentious frame of the same kind, and in the higher-raised wall directly over it is a small vent-style window, while three star-shaped vents will be observed in the wall above the window group to the right. It should further be noticed that the two doorways are arched, and that the arched effect

is also maintained in all the windows, excepting one.

All walls are of brick construction, on a concrete foundation, and the roof, except over the front portion, is comprised of roofing composition.

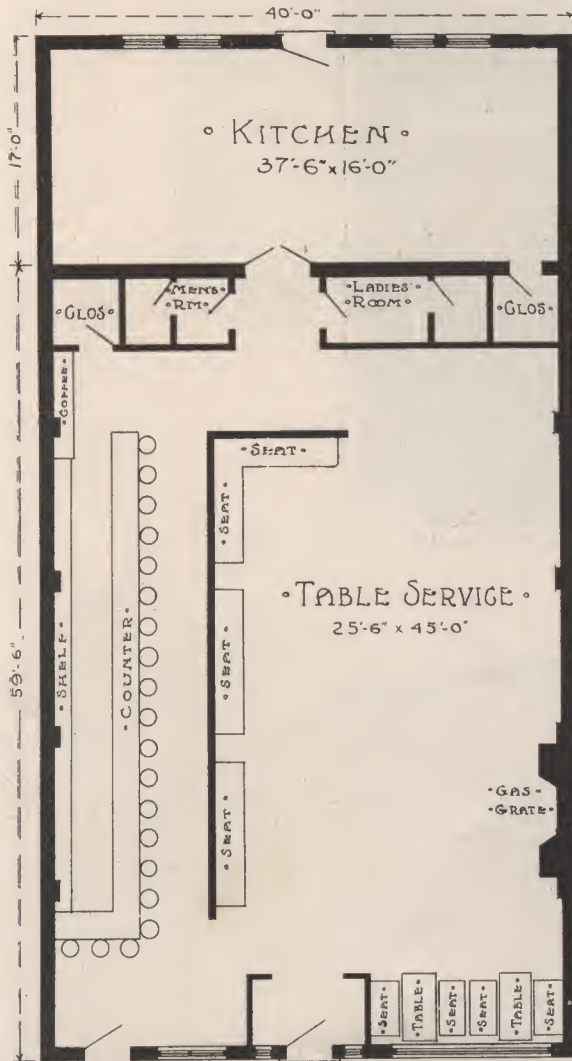
The accompanying floor plan shows the arrangement of the interior. It will be seen that the front or main part of the building is allotted to both counter and table service, and that the back part is given over to a large kitchen. Between these two divisions are two small dressing rooms and a like number of storage closets, and a head-high, L-shaped wall intervenes, in the restaurant proper, between the counter and the table sections. The counter portion is equipped with



No Reason Why a Restaurant Should Not Be Inviting, Is There? Personally, we would look for a nice juicy porterhouse here, rather than elsewhere. The walls are brick, finished in rough-troweled blue colored stucco.

the usual stools, service counter, and so forth, and in the table division there is permanent equipment in the way of built-in seats along the low partitioning wall and both seats and tables next to the front windows. The cashier's office is situated just inside the front entrance.

The interior of the front or service portion of the building is finished in particularly attractive style. The walls are surfaced with cement-plaster, which is troweled in moderately rough fashion and painted in a sort



From the Floor Plan It Will Be Seen That the Restaurant Is Well Arranged as to Counter and Table Service and Kitchen.

of mottled blending of old-parchment color and light blue. The walls are further decorated with a stenciled-like border and panel treatment in reds and dark blue. The woodwork is painted in a dull, light shade of olive green, and the floor consists of dark-brown tile. There is a dummy fireplace in one of the side walls, equipped with a gaslog grate.

This restaurant, owned by Armstrong & Carleton, is located in Hollywood, Calif., and was designed by H. H. Whiteley, architect, of Los Angeles.

A Resurrection

A PARTICULAR grimy, shattered old house on a curve of a road, under a fine old elm tree, was a public eye-sore, and was bought, as an old horse is bought, to be put out of its misery. But war brought strangers to town and they needed homes. The old house was looked over and found sounder in timber and beam than the neglected surface testified. Inner essentials were accomplished and the ugly, two-shaded brown shutters were taken off. They bore the only trace of paint to be found on the house. The surface was tapped, tightened and painted again and again, pure white. The shutters, painted green, were hung back. With a trim entrance and a brick walk, and the elm tree out in full leaf, people said, "How like New England."



An Elastic Wall Primer is Good Paint Base

CARE in the preparation of walls for their coatings of paint is highly necessary if the best final results are to be obtained. The preparation of the walls by proper application of elastic wall primer becomes an important operation.

Elastic wall primer is used to seal very porous surfaces—in the language of the painter, to "stop suction"; to facilitate brushing properties of first coat over surfaces which are quite porous; to prevent lime burns.

The ordinary wall will not require any sealing other than that afforded by the undercoat, but walls where the porosity is greater than usual require a product which will seal the wall and reduce the suction. This can be done by applying a coat of the primer straight, or mixing it with the paint to be used on the next coat. The latter is the more desirable method, in that the addition of material used on a subsequent coat tends to offer better conditions of amalgamation between the coats. However, there are instances where a straight priming coat has its advantages, especially on an extremely porous wall, or where the wall is new and additional precautions are taken to prevent lime burns.

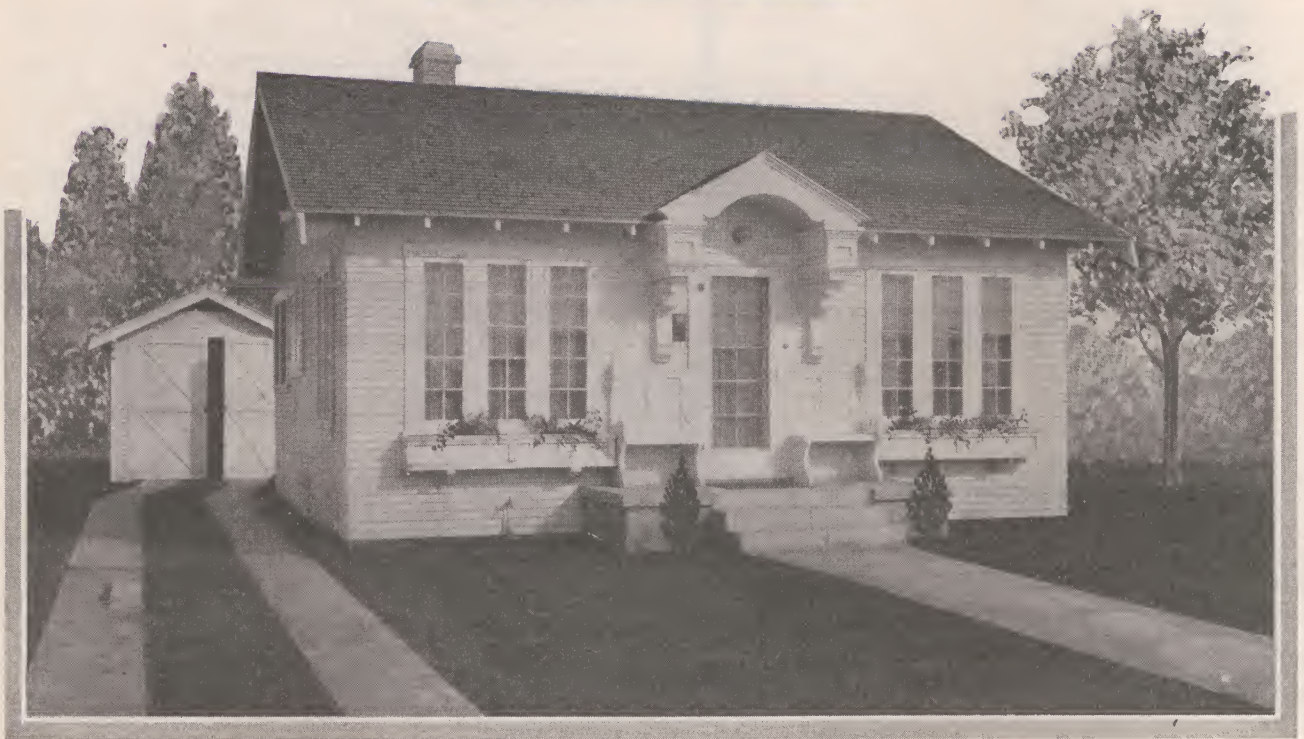
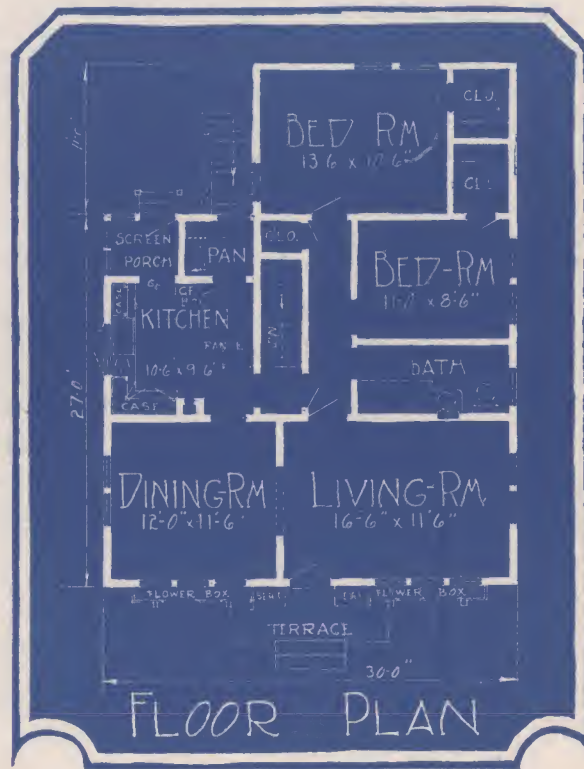
* For porous walls, it is advisable to add a primer to the first coat so that the liquid portion in the paint is increased, and it is possible to brush the paint more easily and sufficiently without having it penetrate the wall too rapidly. If the paint penetrates too quickly, it cannot be applied evenly and so that it will not show brush marks.

The following suggestions apply to the use of elastic wall primer:

1. For the sealing of fresh walls where protection against lime burning is desirable, use a coat of elastic wall primer straight.
2. For the sealing of walls which are porous, the addition of one to two quarts of elastic wall primer per gallon of undercoater or flat wall paint.
3. On walls which are very porous, it may be necessary to use elastic wall primer straight as a sealer coat.

PRACTICAL
&
ARTISTIC

BLUE RIBBON HOMES

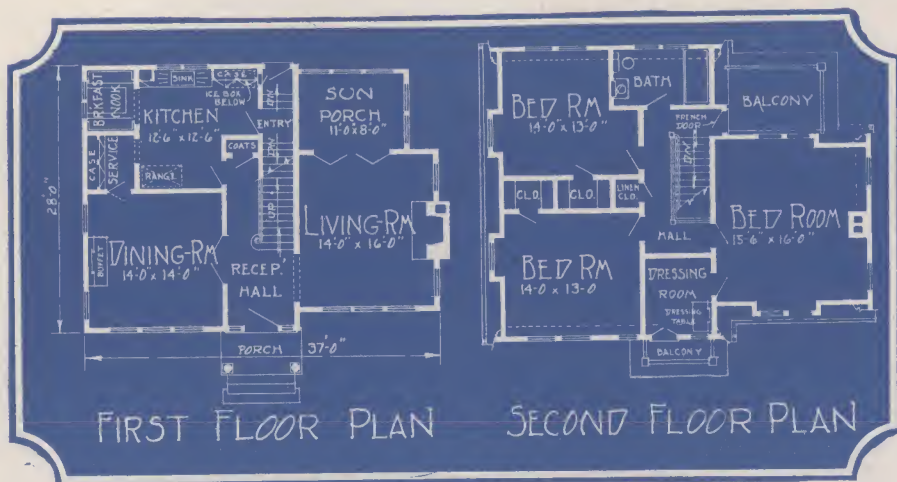


FIVE-ROOM COLONIAL BUNGALOW. This should appeal to Mr. and Mrs. Newlywed and also to Mr. and Mrs. Tired Rent Payer. It could be built quite reasonably, and we ask you—does it not present as neat and attractive appearance as one could ask for in a home? It is finished in siding; stucco could be used instead. The roof has inexpensive finishing at the eaves, but weather-tight. Wide settles flank the entrance door, oblong-paned with glass to match the windows above the neat flower boxes. The little

terrace lets us walk through the door and into the living room; nicely proportioned, too, and space for an inexpensive mantel fitted with an electric grate. The dining room is at the left, and at the rear is the kitchen, with window-lit sink, nice shelving space, window-lit pantry, and rear porch. The bedrooms have good closet space, and are reached, with the bathroom, from the kitchen, as well as from the living room.

BLUE RIBBON HOMES

PRACTICAL
&
ARTISTIC



SHINGLE SIDING FOR GAMBREL DESIGN. We venture to state that this dwelling could be erected in San Diego or in Portland, Maine; in Miami, or in Portland, Ore., and fit in well in any choice residence section without much "sandpapering." The design is the popular Dutch Colonial, and the interior is spacious and able to take care of the needs of a large family. The slightly recessed front entrance leads into a reception hall with Colonial staircase. To the right we have the living room, with fireplace, and

sun porch beyond. To the left of the hall we have the dining room, with kitchen and breakfast nook adjoining. Upstairs we have three bedrooms, the master bedroom having a dressing room adjoining, as well as sleeping balcony at the rear. The bathroom is conveniently placed at the head of the stairway. The dimensions over all are 37 feet by 28 feet. The design could be turned around for a narrow lot, making entrance at the side.



The Artistic Wall Surfacing

The "Textured" Wall Finish Has Come to Stay—This Tells of the Kind of Wall Finish to Use to Produce Proper Effects

MANY people today are demanding a wall finish for interiors that is "different," and in this they find ungrudging co-operation from the architect and the builder. The flat, uninteresting surface of the ordinary plastered wall no longer appeals, and the creation of "textured" effects that help to give the proper individuality to an interior has stimulated curiosity as to how these are made, and how the peculiar finishes are obtained.

One popular composition for use in obtaining the "textured" wall finish comes in the shape of powder. It is mixed with warm water in the proportion of 1½ gallons of water to 10 pounds of the powder. The whole mass is stirred vigorously, until the mixture attains the consistency of smooth paste. At least two hours are allowed for the powder to become thoroughly dissolved, and for the solution to become cold. For one coat work dry colors dissolved in water are added. Oil colors are preferable, slightly thinned with turpentine. It is applied with a wall brush, and allowed to

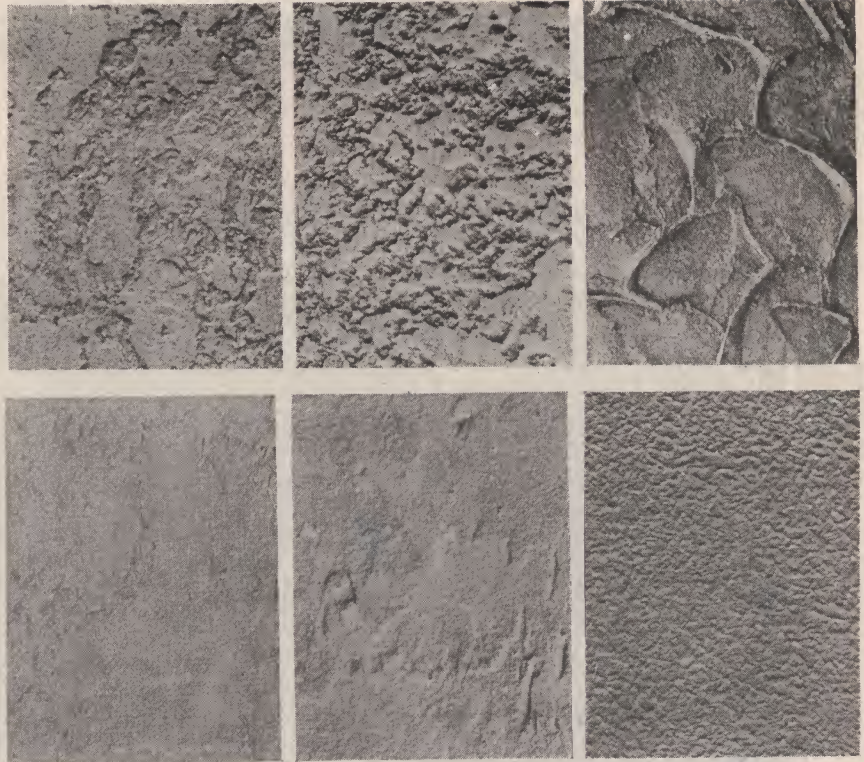
set a little. Stippling with stippling brush, sponge, crumbled paper or dabbling with the flat side of the brush gives a wide variety of textures. Smoothing off the high spots with a piece of wood or trowel gives a trowelled effect.

Under ordinary conditions the coating will dry over night. When dry it is sandpapered thoroughly, and a coat of lacquer sizing is applied. The third, finishing, coat is applied after the sizing has dried. After the last coat has dried a little the entire surface is wiped with a soft cloth stretched over a block of cork or wood to bring out the high lights. The covering capacity of the mixture is dependent, of course, on the type of texture desired and the condition of the surface over which it is applied. The average textures of medium stipple, brushed and trowelled effects require in the vicinity of one pound of the mixing powder to two square yards of surface. One pound of the lacquer sizing will cover from fifty to sixty yards of surface, according to the texture it is used over. One gallon

of the finishing coat will cover approximately forty yards of surface, depending upon the texture covered.

The mixture can be applied to the "brown" coat of plaster which has been floated or trowelled as smooth as possible by the plasterer, in place of skim or hard coat plaster and paint. It thus effects a saving in cost, and considerably shortens the time during which a building or room must remain unoccupied to allow for the hardening of plaster and drying paint. The finished coating averages one-sixteenth of an inch in thickness, and since it does not become hard or brittle, but remains in a way pliable, it is not easily damaged by knocks from furniture or moving objects.

Besides its use over "brown" coat plaster, it can be applied to practically any surface, including tin, wood and glass. As it possesses



Rough Finishes Are Obtained by Brushing on the Mixture in an Uneven Manner, Then Smoothing with Cardboard, Tin, or Stippling Brush. The two lower finishes (left) are sand finishes, duplicating early American work.



Not Hard to Understand the Appeal of the "Textured" Wall. It is a self-pattern where no two feet of surface are alike.

sufficient body to produce an interesting relief and therefore conceal irregularities of surface, such as would be caused by joints, it can be used to decorate wall board after the joints are filled in the usual way.

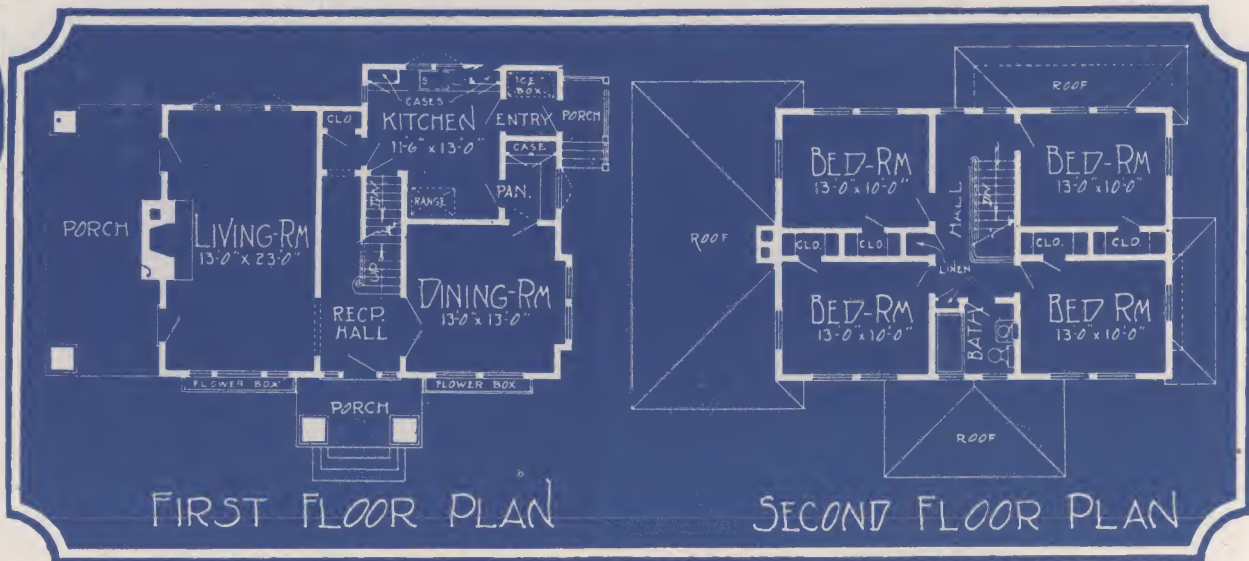
As applied by any painter or decorator this wall finish compares in cost approximately with the cost of three coats of paint or an average priced wall paper.

The rough plaster effects so much in demand for the Spanish and Italian Renaissance interiors now in vogue can be obtained by the use of this wall finish. The sanded plaster finishes, reproducing those popular in the early pioneer days of the country, are also reproduced by its use, as well as the rough plaster work popular in interiors of bungalows of the English cottage type. Caenstone can be imitated perfectly.

The tinting and coloring of walls of this sort offers no hard and fast problem. It is preferable to have the tinting uneven, to take away from too much sameness in the room. In one case, where this new wall finish was applied directly over the wall paper, no coloring was added, since it was found by preliminary testing that the wall paper colors would run. And so they did! The colors from the quiet all-over pattern of the wall paper permeated the wall finish, and produced an effect hardly possible without much extra effort and stippling.

PRACTICAL
&
ARTISTIC

BLUE RIBBON HOMES

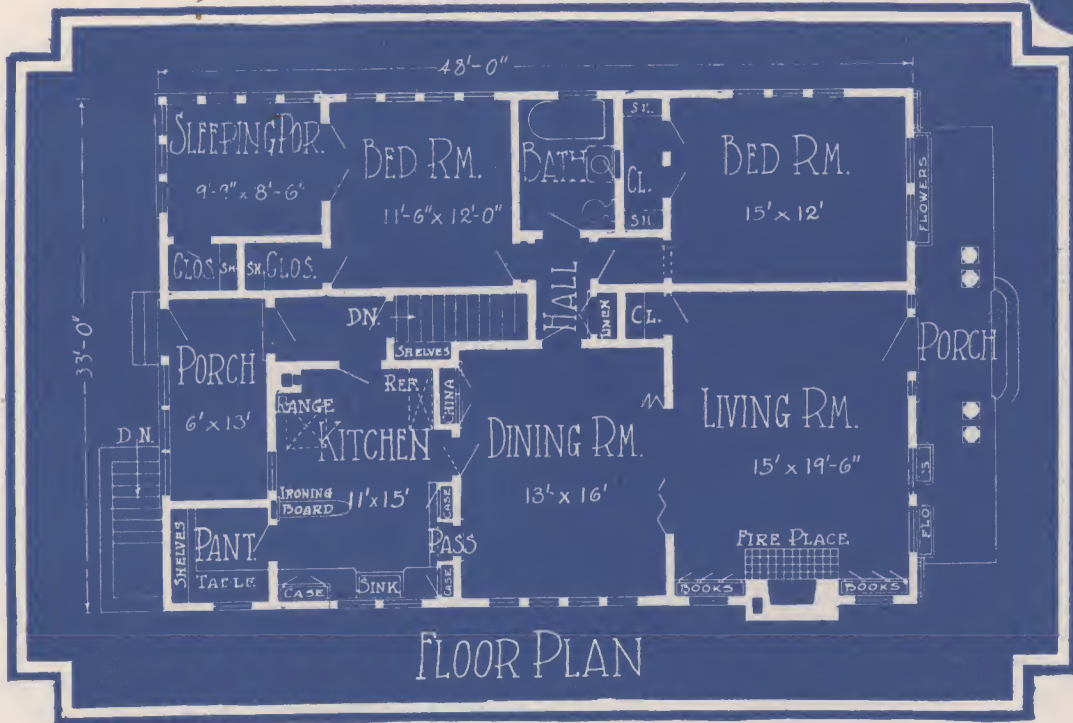


EMPHASIZING HORIZONTAL LINES CREATES GENEROUS IMPRESSION. The well-handled eaves of this residence give an unusually spacious effect to this dwelling, and the design should commend itself to localities where the over-hanging eaves are necessary both as a wind-break and as a shelter against direct hot sunlight the greater portion of the year. The exterior is of siding but brick or stucco could be used with equally good results.

There are two porches; the front one leads into a reception hall with opportunity for a well-handled staircase. The living room occupies almost one whole lower half of the house, and doors lead out upon the wide porch, from either side of the fireplace. The kitchen and dining room occupy the other lower half. Upstairs are four bedrooms and bath, with sleeping porch possibilities over the side porch roof.

BLUE RIBBON HOMES

PRACTICAL
&
ARTISTIC



BUNGALOW OF NEW APPEAL. What the designer of this bungalow did was to simply drop off the upper story of a typical Colonial design, and leave a well-balanced lower story that retains all the artistic perfection of the best of our early American houses. Its exterior is of siding, painted white, but white stucco would serve equally well. The spreading porch entrance is inviting, as is also the wide entrance door flanked by the

quaint and serviceable sidelights. There is no entrance vestibule; a step, and we are inside the ample living room, with fireplace flanked by book-cases at either side. Wide folding or sliding doors separate this from the dining room, with built-in china closet. The kitchen has many built-in conveniences. There are two bedrooms and a sleeping porch, reached through the dining room door only, and with full privacy assured.

Twelve Reasons Why I Didn't Buy That Corner House

By EMMA G. WALLACE

WOMEN have their own feminine peculiarities and these often express themselves in prompt approval or disapproval of some detail of home-making. A prejudice or a dislike of a certain arrangement is often enough to make a woman say, "I do not want that house," and as a rule the woman's judgment weighs heavily with the rest of the family. It is really right that it should, for the home is her domain and she will be happiest where her surroundings please, and are convenient.

As I looked around the Corner House, I found that a frown was gathering between my eyes, and I kept asking myself impatiently: "O why did the builder do it that way?"

Well, here are the twelve reasons. Consider them, ye men who build houses. Ponder on how much more it would have cost—if anything—to have corrected some of these faults. Surely it would have taken no more foundations and no more roof, and in some places money might actually have been saved.

Number One. As I entered the rich and rather handsome front door, I was somewhat shocked to find myself in a pinched, cramped, little vestibule. There was scarcely room to shut the outside door. In fact, to do this, one had to stand aside or literally shrink into a corner.



I Had Always a Hankering to Live in a Corner House. Now I thought my wish was to come true.

Number Two. As I entered the hall of the Corner House, I was somewhat pleased with the vista of rooms which stretched away. The arrangement was compact, and as the sun shone through the windows, the scene intrigued me. But soon I felt the frown gathering again, for I quickly discovered three faults—or so they seemed to me.

The door leading from the vestibule to the hall opened inward, and when open almost touched the lower step of the stair. It meant, if several people were going out at once, that I, the hostess, would have

to stand on the lower step or right up against it. If I were giving a little social affair and part of my guests were coming down stairs with their wraps on, or going up stairs for their wraps, while others were going out of the front door, there would be an awkward situation. That stairway could have been set back farther as easily as not without sacrificing room up stairs. It had been merely a matter of lack of vision.

Then as I looked beyond, I could see right into the dining room, and like many housekeepers, I object to this arrangement. Three times a day, the dining room is in use. Sometimes there is a picked-up meal, or for some reason, the table has to wait a little while until I can find time to attend to it. That dining room is better out of sight of the arrival caller, than in sight.

Then the third point which displeased me was the most serious of all. For some unaccountable reason, the builders had made the stairs very narrow and I could see myself constantly fussing when trunks were brought up and down stairs, or furniture moved lest the wall paper be marred and the woodwork bruised. It was evident that large articles of furniture would go up stairs with difficulty, and I thought of a couple of heirlooms with apprehension.

Number Three. As I went into the living room and the kitchen and the little music room, found myself in a mood which was beginning to be critical. The rooms were quite empty, and so I examined the woodwork closely. It was evident to me that it had been cheaply finished, for casing here held in place only in some places with one nail at either end. It was evident that in time, there was sure to be a shrinking or warping, and that what was quite good-looking now, would soon be past its first best.

This discovery led me to examine cupboard doors, linen closet drawers and windows. I found that the cupboard doors were not carefully fitted—that catches didn't work well, and that drawers stuck and bound, and baseboards and casements were not of the type of workmanship I had hoped to find. My heart was beginning to sink.

Number Four. On the second floor, there was a door which opened into a stairway leading to a couple of very attractive rooms, and an attic store room on the third floor. I could see that these rooms would be of great value to me with the family for which I had to provide, and when one reached these upstairs rooms, they were bright and comfortable. But here another difficulty presented itself, for it was plainly evident that the third stairway would not permit an ordinary bed spring to be carried up. There was an overhanging portion of the entrance which was just

about one foot too low to let a dresser or the head board go up. It was even more awkward to carry trunks up there.

Number Five. As I wandered through the rooms, I was impressed with the fact that in almost every room furniture could be placed in one location only. The builder had seemed to take unholy glee in appropriating every stretch of wall space. Radiators, mantles, doors and windows were sprinkled about with a profligate hand.

I get fearfully tired of always having my piano stand in one spot as if it were glued to the floor, and of never being able to change the location of my bed, or the dining room buffet. Once in awhile I like the tonic of a change—and the Corner House gave absolutely no promise of the possibility of any change—once you moved and got settled.

Number Six. The heating plant gave me some anxiety. So much of our year is winter and such a proportion of the balance very late in the fall, that I like to feel that I can be warm without an undue expenditure of effort or fuel.

About this time, the owner of the property strayed in. I inquired about the heating plant and found him delightfully ignorant concerning its virtues. He had bought it, it was very clear to see, because it was cheap, and he did not have to live in company with it. He was vague about the way to handle the drafts or the amount of fuel it would take, but promised hopefully to find out, for he could write to the distant concern from which it had been procured. There was no local service on it. This was promising.

Number Seven. Near at hand was the coal bin which was of decidedly abbreviated proportions. It was put in a dark and dingy corner of the cellar, necessitating extra steps with coal and ashes. If a coal strike threatened, there was no opportunity to put in a season's supply. There was a chance to remedy this, to be sure, but it would mean expense to do it.

Number Eight. Nearby was the plumbing arrangements for set tubs, and it was airily pointed out that they could be put in in an hour or so. There was no place for fruit shelves, a preserve closet or a vegetable rack. I remarked that these should have been put in economically while workmen were on the job. The owner looked injured and his expression of countenance plainly said, "Women are an unreasonable bunch."

Number Nine. Another point about the basement

I did not like was that it was too low. Husband and sons are of the tall type.

There was another thing I didn't like about the basement. It was inclined to be dark and in wiring it, only two lights had been arranged.

Number Ten. I may be a trifle old-fashioned, but I like an outside cellar door, or hatchway. Now in this house there was

a very handsome and practical looking fireplace in the living room. It was evident to me that we would use it a great deal and that the ideal fuel for it would be wood. This wood could not be stored outside, the basement was the logical place for it. But to get it into the basement, one had to go through the refrigerator room, across the kitchen, through a hall and down the cellar steps.

Number Eleven. When I buy a piece of rich brocade or expensive material, I plan to use every scrap of it to the best purpose. Yet that land upon which the Corner House stood had been used very stupidly. The house had been set directly in the middle of it. There was a fine big tree at one side and neither by hook or crook could you plan a driveway. There was room for a small garage in the rear, but one could not tunnel under the house or fly over it.

Number Twelve. The Corner House was in the main a new piece of construction work, but one wing now nicely made over had been part of an old house which had originally stood on this piece of ground. The wing was sturdy and built in the days when lumber was plentier than it is now. So it was easy to understand why it had been used. However, as I walked about the two rooms in this wing, I felt that I detected a peculiar odor, and I began to frown again. I now knew the nature of the dull, sickening odor which I detected. It came from bedbugs!

This was the last straw. The house had no screens on windows or doors, and by the time we put in laundry tubs, extra support for the basement stairs—which they needed; screens, and extra cellar windows, and rented a garage—the outlay and expense would be way beyond what originally appeared.

We couldn't have just what we wanted, and so regretfully, I turned my back on the Corner House.



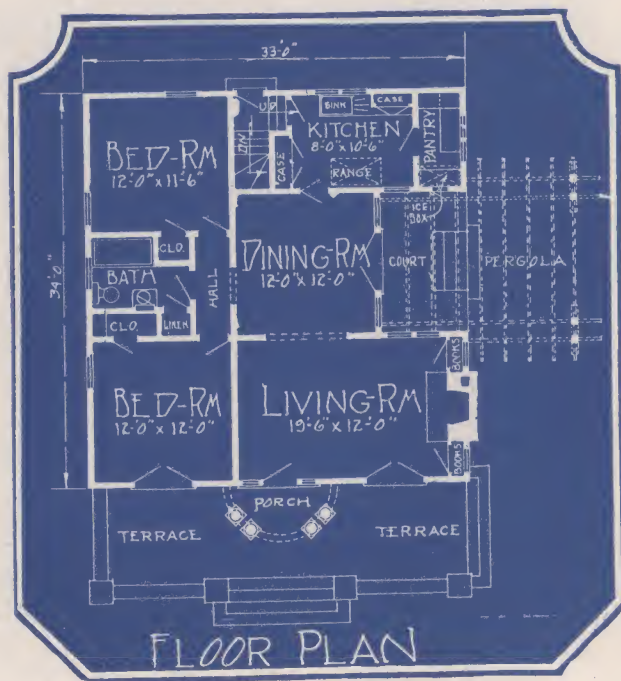
Examining Cupboard Doors, Latches and Windows, I Found Them Ill-Fitting; Catches Did Not Work Well.



I Detected a Peculiar Odor; Part of the House Had Been Old and Remodeled; I Scented Bedbugs!

BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



FLAT ROOF DESIGN FROM CALIFORNIA. This is a truly delightful little bungalow, and typical in its perfection of the stride made toward artistic small housing in our westernmost state. The entrance porch is capped by an ornamental balustrade, complemented by additional fret work to either side, which gives tone to the skyline, and the jutting colored tile roof portions relieve the white exterior from anything savoring of monotony. There are five

rooms and a bathroom. Observe how the living room and dining room open on a court or patio, with sheltering pergola, to enable our western cousins to enjoy the justly celebrated California climate. However, it is a detail worth including in other localities as well; we are becoming more and more an outdoor people so far as our houses are concerned. The front terrace lends itself to potted shrubs and flower boxes exceptionally well.



AN OPEN-FACED DESIGN IN BRICK. First of all we hope you will have a wide and spacious lot for this house; it calls for just that. The design owes something of its "comfy" suggestion to English cottage prototypes, and we want you to observe how such a trifling detail as intelligently designed lattices makes a great difference, for the better, in the general appearance of the front. It is always the little things that make or mar the

home; the big thing, the house itself, can almost always justify itself, providing only that it be honestly and soundly constructed. Our terrace substitutes for a porch; it can be cement, brick, or tile; or colored cement laid to simulate tile. The living room and sun porch give the effect of one large, well-lighted room. The dining room is separated from the kitchen by a serving pantry and breakfast nook. The bedrooms have full privacy.

Parables of Bildad the Builder

VI. He Considereth the Way of a Shoveler with a Packard and Concludeth that Bosses Fail Because They Consider Junk Good Stuff

IT hath become Increasingly Difficult for a Builder to secure a Contract upon a Site which will leave his Workmen sufficient Parking Room. Once upon a time my Cohorts arrived behind their Mules at 7 of a Morning, and the Way they Toiled and Sang together was Beautiful to See.

But now, Odds Bodkins, Wot!

Jerusalem Jackson, my Straw Boss, rideth to the Job in a Purple Packard behind a Purple Chauffeur; and Sundry of His Cohorts arrive in 1924 Advance

with a Slot at its Side for His Golden Trowel. And he But an Apprentice!"

"Desist," I Begged; "can One make Bourbon of Potatoes or a Diamond Brooch of a Tin Can? Think you that I and my Fellow Builders have not seen the Trend of Things, and are Thinking Terrifically? Our Association is Considering the Advisability of Asking Assistance from Congress."

"Yes, and you May as Well ask for a Kneebuckle from a Scotch Highlander," saith that Terrible

Woman. "And why, Pray, is Mrs. Jerusalem, who Was Katy, my Washwoman—why Doth she Turn up Her Snout when she Goeth by Arrayed in Purple and Fine Chifons, Disporting her 400 Pounds of Considerable Avoirdupois upon Automobile Cushions?



Jerusalem Jackson Rideth to the Job in a Purple Packard and the Men on Divers Mounts, Making Parking Space of My Building Sites.

Models of More-Than-Flivvers; and the Water Boy sporteth His Own Sprinkling Wagon which supplieth Naught but Charged Water, and Which was Purchased from the Proceeds of an African Golf Tournament, held on my own Time.

Wherefore before-times I was required to Have but one Shack on the Job, now I require a Whole Three Acres nearby, with Traffic Orderlies and Signal Stations. And the Noise of their Many Comings and Goings soundeth like the Tail End of the Japanese Earthquake, and their Exhausts like the Crack of Doom.

And as I Figured up my Check Stubs, to see Were I Able to Pay this Month's Premium on my Thirty Cents' Worth of Insurance, I Talked to Myself more than Usual, and Going Home to Our Frugal Meal of Cornmeal Mush and Skimmed Milk I sat Idly by, While my Wife Washed the Dishes, figuring a Way Out.

When she had Wiped the Sink she came in. "I saw Your Straw Boss and his Wife going By just now in a Packard. How come, and Me doing our Own Washing?"

"Yes," she Tormented further, "and there Goes that Red Headed Murphy Boy on a new Harley-Davidson,

My best dress hath Been Turned thrice and the Shoemaker Groaneth when my Frazzled Pumps arrive for the Sixteenth soleing. I tell you Why, thou Bildad Near-Builder; thou and all Thy Tribe, Ye are in Love with Junk!"

"Junk!" I asked, Flabbergasted. "Art thou Junk?"

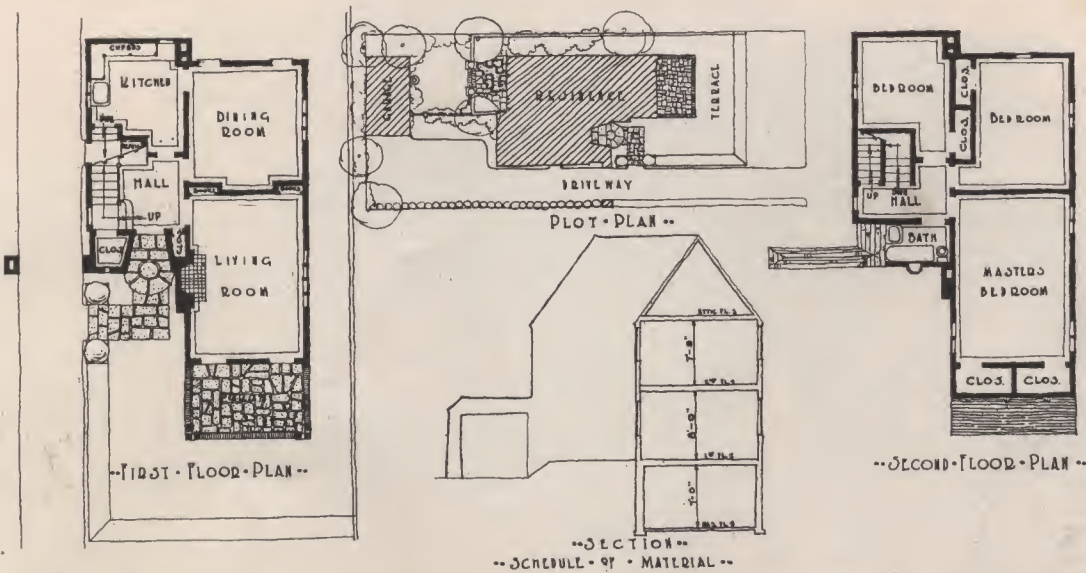
"Cut the Comedy," she Shouted. "Have I not seen You pass By the Improved Claw Hammer Hardware Store on Saturday nights, and Not Give it a Look? And Slim Speed's Truck Agency? And Fitem's Clothing Store? And Fish & See's new Business Stationery Store? And even the Flivver Agency? Aye! But you would Meet up with that Saphead, Lugubrious Luke, whose Jaw is a Plug Tobacco Factory, and you Two Pinheads would Lay Brick on how the Country was Going to the Demnition Bowwows. And All the Time your Yard looked Like the Wreck of the Hesperus, and your Jobs like a Thomas Cat with the Mange. This world Has Moved since You and Noah built the Ark; get Hot Feet, Bildad, get Hep!"

I am a Peaceful Man and Dislike Amazons, so I walked Out and to the Job, where my Watchman was dozing in his Rolls Royce. There may be Something in What She Says, for I have Wired for a hundred Catalogs and a demonstration of a Stutz.



~ PERSPECTIVE ~

.. CLEVELAND · REAL · ESTATE · BOARD · COMPETITION ..



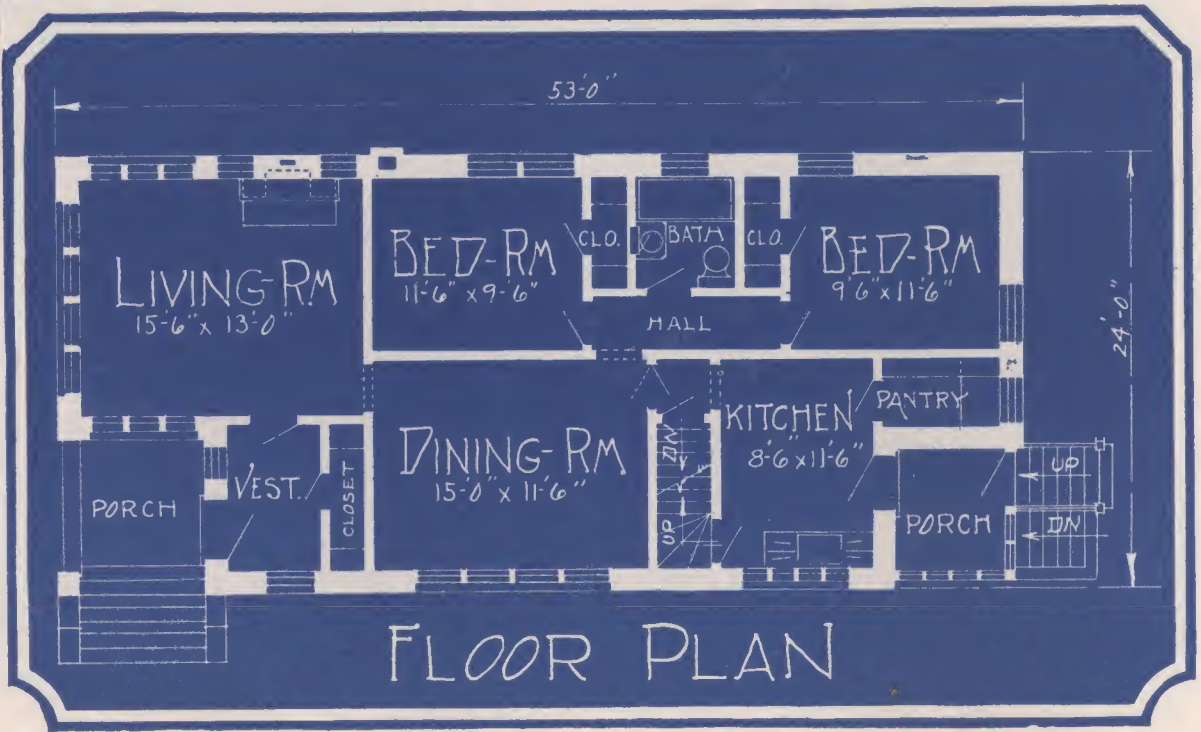
.. SCHEDULE OF MATERIAL ..

.. No SQUARE FEET FIRST FLOOR. 763 SQ. FT. .. WINDOWS OF CYPRESS, MUNTINS OF WOOD. .. INT. WALLS AND CEILING LATHED AND PLASTERED (BASEMENT EXCEPTED) ..
 .. CUBIC CONTENTS OF HOUSE. 21216 CU. FT. .. DOORS AND ALL EXT. TRIM OF CYPRESS. .. INT. TRIM OF GUMWOOD GUTTERBOARDS OF YELLOW PINE PREFERABLY. ..
 .. EXT. WALLS OF 2"x4" STUDS, CEMENT STUCCO OR DIAPHANIC LATH. STAINED CLEAR SHINGLE ROOF. FLOORS BEST GRADE MAPLE. MAPLE STAIR TREADS ..
 .. FOUNDATION WALLS OF BRICK OR HOLLOW TILE. .. GLAZING, DOUBLE STRENGTH AMERICAN GLASS. .. INT. PARTITIONS OF STUD FRAMING ..
 .. BLS BROKEN TILE AS INDICATED ON GABLE. .. CAST PLASTER DECORATION OVER SMALL WINDOW OF HALL CLOSET. BATHROOM WINDOW OF WOOD AND METAL ..

M. A. NORCROSS, CLEVELAND ARCHITECT, WINS IN HOME DESIGN COMPETITION. In a competition instituted by the Cleveland Real Estate Board for the best design of a six-room house for persons of modest income, and open to architects of United States and Canada, the drawings submitted by M. A. Norcross, architect, 510 Buckley Building, Cleveland, Ohio, received first award. The competition was in connection with an exhibition held under the auspices of the National Association of Real Estate Boards. Requirements called for a house for a lot 40 feet wide and 100 feet deep, the lot to be an inside one, and the house to be set back 25 feet from the front line and five feet from one side line, and at least eight feet from the other side line. The house was to have three rooms on the first floor and three bedrooms and bath on the second floor, with a possible maid's room and bath on the third floor, if desired later. A garage for one car was to be attached to the house, or placed on the lot at the rear, and to be in keeping with the style of the house.

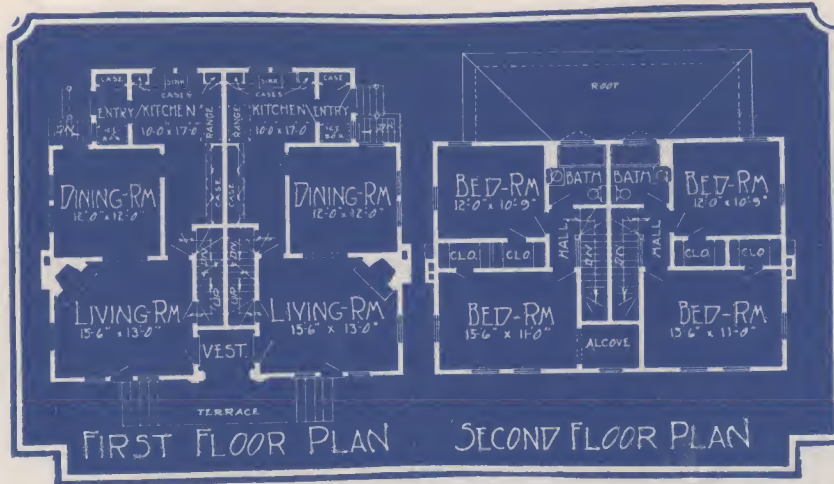
PRACTICAL
&
ARTISTIC

BLUE RIBBON HOMES



BRICK BUNGALOW FOR NARROW LOT. A pleasing and well-balanced design, don't you think? You could build this bungalow of common or face brick, and be assured of a thoroughly satisfactory residence. The common brick could be laid in occasional "staggered" courses, taking away from too-great sameness. The white trim contrasts well with the brick, and there is just enough of a decorative touch added by the limestone or cut stone

ornamentation to give distinctive character to the whole. The tile roof is in keeping with the massiveness of the design. Our interior is well arranged, and the living room is well lighted. The windows might be eliminated on the side wall, and the fireplace centered there, if desired. The bedrooms are arranged for full privacy, and connect with a bathroom. There is a window-lit pantry and a rear service porch.



DUPLEX DWELLING OF SPANISH DESIGN. This residence fits the needs of the family desiring to make its home an income-producing investment, for it is arranged to serve two tenants, one on each half of the house. The wide entrance opens into a vestibule from which doors open on either side into the respective apartments. Downstairs there are living room, dining room and kitchen. Upstairs are two bedrooms, with one of the apartments gaining the

advantage of alcove space over the vestibule. There is ample closet space, and a good provision for additional shelving room off the kitchen. The owner can use one heating unit for this house, saving in fuel. One might also build a sleeping porch over the roof on the second floor, rear, and add extra sleeping space. The general design of the house is excellent, helped by the cast stone entrance and decorative units set in the stucco wall.

Beautifying Convenience Stations

By JOHN F. McCLARREN

IN THE matter of convenience stations, two structures have been completed in small parks in Philadelphia which are attracting more than usual attention because of their design. The design for each of the buildings is by William E. Roletter of the City

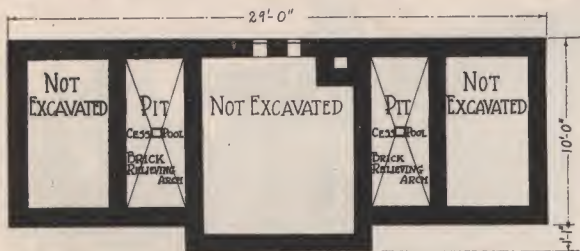
The other convenience station is located in what is known as Torresdale Park, also a natural park. This is an altogether different type of building from the other but the design was worked out apparently with the idea of having the building conform to the sur-

roundings. The building is strictly rustic in design, but as will be noticed it fits in very well with the surroundings. It is of local rubble stone made up in random, but very pleasing fashion. The roof is of heavy variegated slate, also laid at random and the same cornice and rafter effect which is noticeable in the building in Disston Park is also present in this building. The wood-work is finished in dark color. The casement windows are divided so as to use small panes. The expenditure for the structure was \$3,500.

THE Scruggs, Vandervoort & Barney DRY Goods Company, St. Louis, has erected a four-story and basement garage for the use of its customers. One may park his car for three hours in the garage without cost. Any time in excess costs 50 cents an hour.

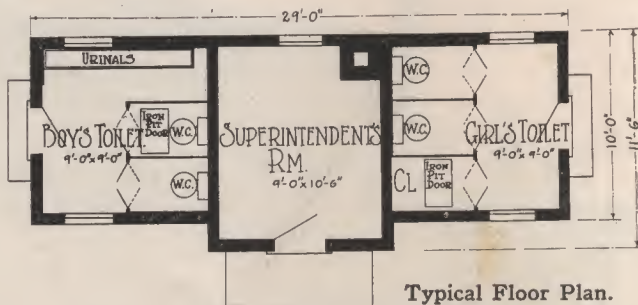


Convenience Station, Torresdale Park, Philadelphia, with Broken Ashlar Rubble Stone Walls. Designed by W. E. Roletter, City Architect's office.



Architect's Office.

Typical Foundation Plan.



Typical Floor Plan.

One of these is located in what is known as Disston Park, a natural park. In style the building is old English. The design throughout is very simple, but the solidity and substantiality of the structure is evident. The building is of plaster and brick made up in patterns which are interesting. Casement windows are used and these are made especially attractive by the small panes. The band of bricks, set on end, immediately under the roof is a feature of attraction in the design. The roof is of heavy variegated slate with a wood cornice and rafter ends. At the gable ends small touches of half timber occur. The cost of construction of the building was \$4,000.



Convenience Station, Disston Park, Philadelphia. Combination brick and stucco timbered construction. Designed by W. E. Roletter, City Architect's office.



A Pleasing Modern Residence

By R. C. HUNTER & Bro., Architects, New York

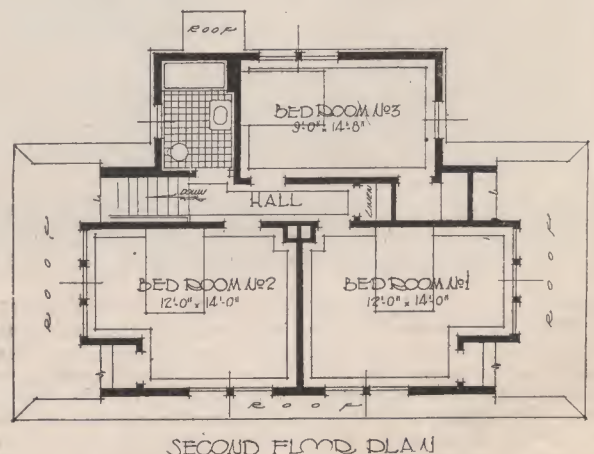
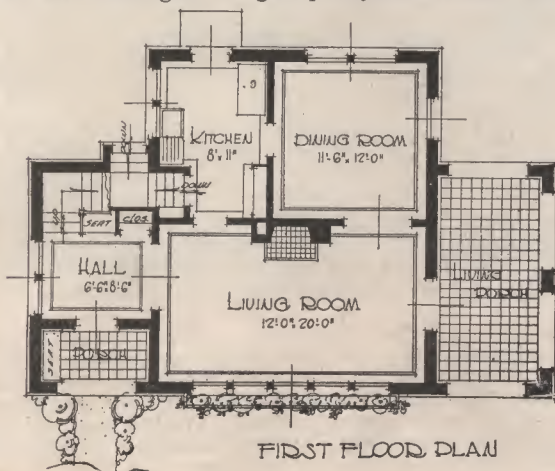
THE long sloping lines of the roof give this house a pleasing character, and with the hood that extends across the front, just above the first story windows, a strong horizontal effect is obtained that tends to lower the appearance of the house and at the same time to increase the apparent length.

This gives a front of good proportions that is not stilted and in no way suggestive of the four-wall-and-roof "box" that is so often characteristic of small two-story houses.

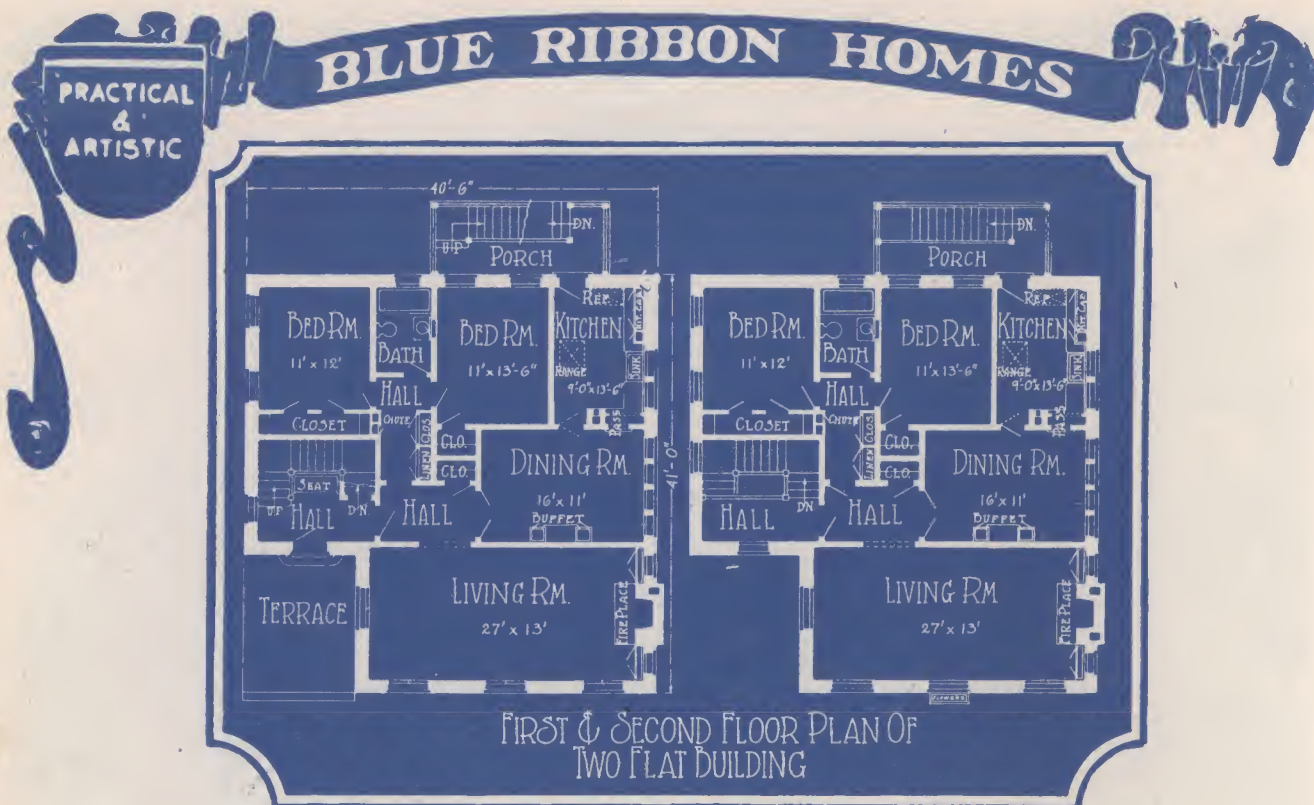
To further this pleasing horizontal effect the windows are arranged in groups symmetrically placed.

Most striking is the group of five large windows in the first story that center in the living room, opposite the fireplace, giving a most unusual wall treatment and making the room bright and attractive. A flower box extends the full length under this group of windows, offering a tempting setting for geraniums and hanging vines where they will show to the best advantage, both from within and without.

A small reception hall, a living, a dining room, kitchen and attractive living porch complete the first floor. On the second floor are three good size bedrooms and bath.

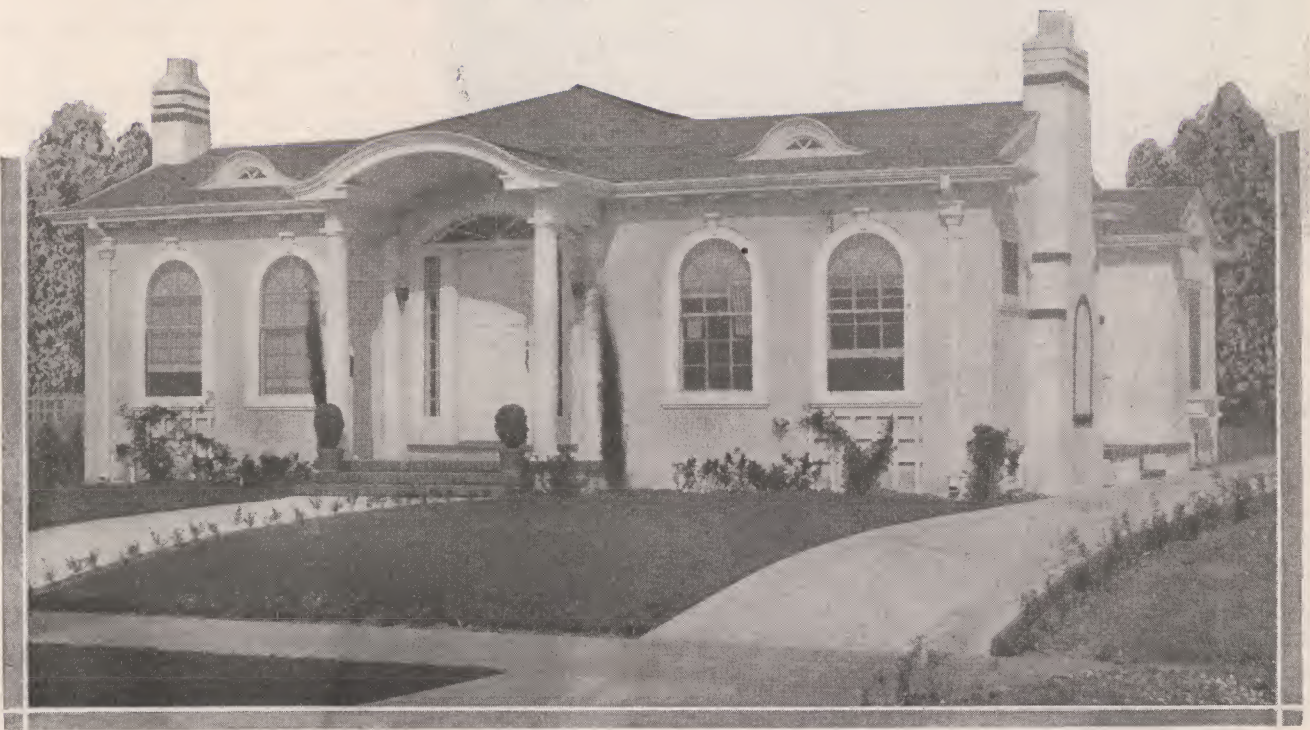
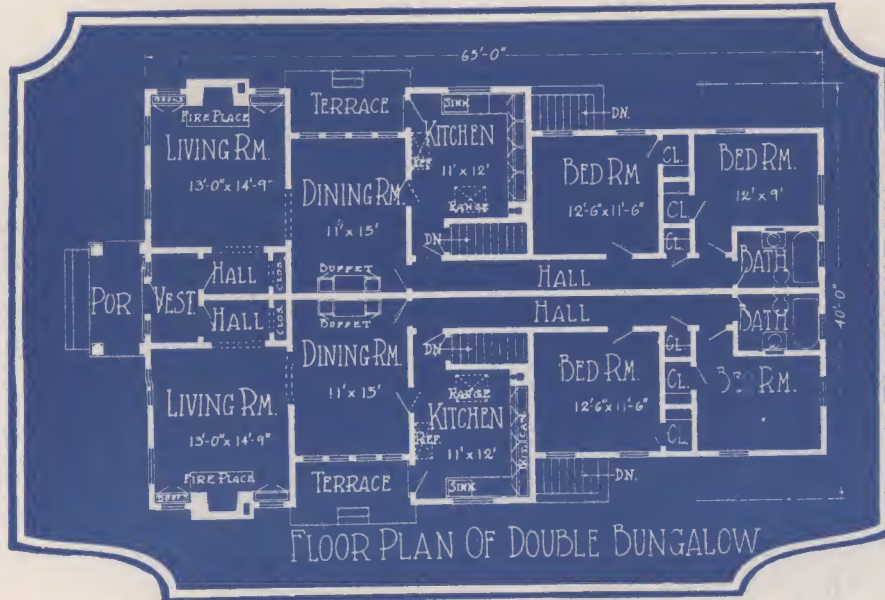


Interior Arrangement of a House Larger Than It Looks But Handled in a Way to Give General Effect of a Smaller Dwelling.



TWO-FLAT RESIDENCE TYPE, CALIFORNIA STYLE. Here is a dwelling designed for two-family occupancy, and yet does not suggest anything of the kind from the outside. The first floor is complete, with five rooms, and its arrangement is duplicated on the second floor. The living room is given unusually prominent position and is generously dimensioned, being 27 feet by 13 feet, with fireplace at one end. The other rooms are ample

in size, and each floor has a rear porch. Exteriorly the house presents a very attractive appearance. The stucco is colored, as is the liking in California and the southern states just now. The roof is the Spanish tile kind one would naturally expect upon such a structure, the tile being chosen to secure a variegated effect. The landscaping is well done, the lawn terrace and four sentinel cypresses fitting in admirably well.



DOUBLE BUNGALOW, 5 ROOMS ON EACH SIDE. Exteriorly there is nothing to indicate that this handsome bungalow is designed for occupancy by two families, and on that account it merits attention as offering a means of meeting residence section restrictions in localities where anything savoring of the apartment building is frowned on. The wide Colonial doorway, with side lights, makes an ample vestibule possible. From this two doors

open off, one into each apartment. Each side has five rooms and bathroom, and worth noting is the arrangement whereby the bedrooms are assured complete privacy by being placed at the rear of the structure. The general design of this duplex-bungalow is very pleasing. A modified Colonial design has been used throughout. It is finished in white stucco, but would look equally well with wide white siding.

Every Builder in America Should See This Summer House

By S. P. IRVIN

I WISH I could lead a thousand practical builders through a summer home that nestles on a sheltered bay in Lake Erie, then collect for my trouble just 1 per cent of the extra business to which that trip of inspection would lead!

It must be an unusual place, you'll say.

No, that's the surprising part of it.

In every way but one, this summer home is no different from hundreds of other well-designed, well-built

the lake shore, dampness was playing havoc with plaster. Ceilings were cracking and falling nearly every winter. Mr. Alexander wanted to be free from trouble of that sort; he cast about for some interior-lining that would stand up.

A magazine advertisement featuring wallboard attracted him. He showed it to his architect.

The architect was not overly impressed. "Really, Mr. Alexander," he said, "that's right enough in its place, but I don't think it's the thing for the better type of construction such as you have in mind."

"Why not?"

"Well, I don't know, exactly, but we've never recommended it——"

Perhaps because Mr. Alexander is a business man he has more faith in magazine advertising than some. At any rate he was unconvinced.

"I'm going to follow this thing through and find out *why* I can't use it," he declared.

He got in touch with the manufacturer of the wallboard.

"I have an advertisement of yours showing your board used in a wonderful Colonial living room," he said. "I'm putting up a summer home and I don't want to be bothered with falling plaster. In fact, if your stuff looks like you show it,



Very Attractive Lake Erie Summer Cottage of Mr. Oliver Alexander, Well-known Business Man of Buffalo, N. Y.

summer homes throughout the country.

It's just an attractive, comfortable cottage, 31 by 28 feet, with an 18-foot "L" projecting 6 feet in the rear, an enclosed sun-porch, large living room and kitchen downstairs, three bedrooms and bath upstairs.

Yet it illustrates a profit-opportunity which nine builders out of ten have almost entirely overlooked—it points the way to possible business which in the aggregate could mean hundreds of thousands of dollars of extra income to the builders of the country—income that could be built up with a minimum of trouble and expense.

A brief story of its construction will help to explain.

It was built for Oliver Alexander, a business man of Buffalo, N. Y. The plans were drawn by a well-known architect of that city.

Shortly after Mr. Alexander had the plans for the house, he began to worry about the interior. Along



The Bath-room in the Alexander Cottage Shows What Can Be Done with Fibre-tile for Wainscot Work in Kitchens and Bathrooms.



The Big Living Room in the Alexander Cottage. Notice the size of the Fibre-board panel above the fireplace.

then I want to use *that*. But my architect says no.”
It was a challenge that couldn’t fail to bring prompt action.

“Who’s your architect?” the manufacturer asked. “We’ll have one of our own consulting architects talk to him immediately.”

And so the architect was won over.

“If you can get results like this, I’ll be glad to specify it,” he said, “but you’ll probably find your builder won’t like it.

And, in fact, that was what happened.

The builder looked at the revised plans in amazement.

“Say, what’s the big idea?” he demanded. “I’ve

used wallboard before, but I **never** saw anything like this. You can’t do this with wallboard. It’s impossible.”

“But it isn’t impossible,” insisted Mr. Alexander, “It isn’t even difficult. Here are the cross-sections of the wood trim to be used. And here are the wallboard specifications for each room.”

The builder shook his head, unconvinced.

“What’s the matter? Don’t you want to make all the money on this job you can?”

“Sure. But——”

“Sure you want to make all you honestly can. Now why argue with me about applying this wallboard, when your men can do **that work** themselves and you’ll make **just** that much extra money that would otherwise go to the plasterer——”

“Oh, well, we’ll try it.

* * * *

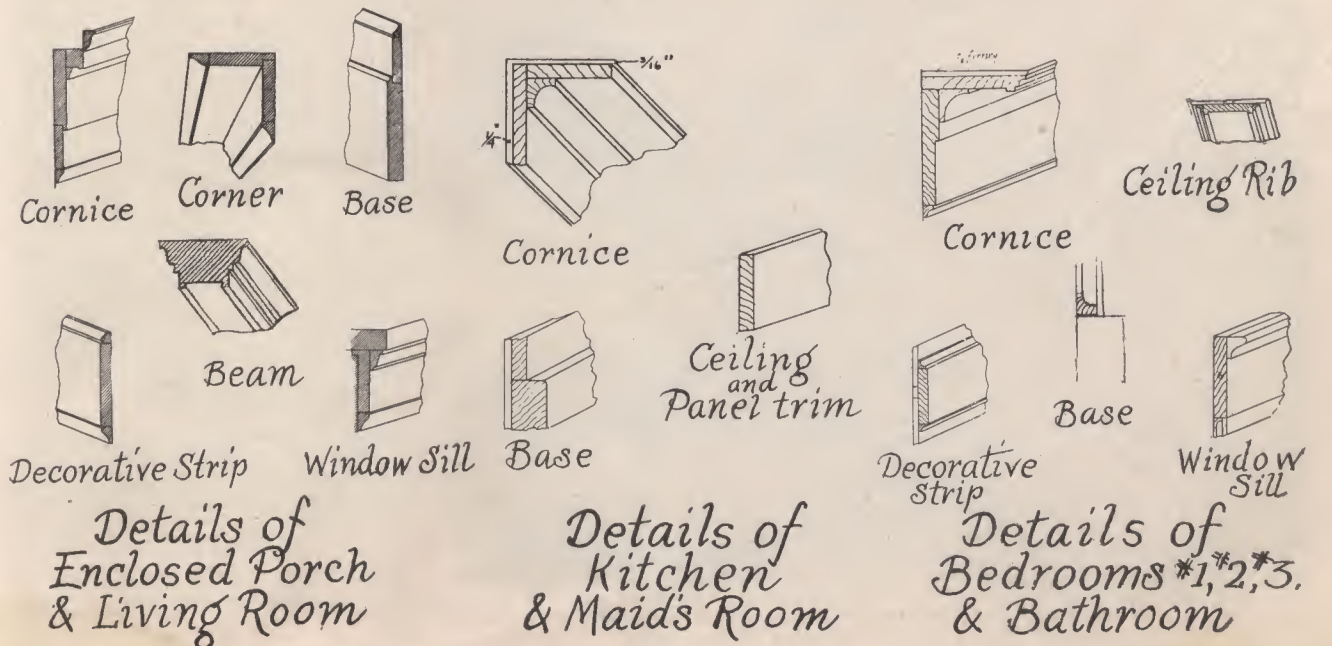
And that, in brief, is the story of the way this summer home on the shore of Lake Erie was started.

Now the point about it is this:

When the house was finished and the beautifully plain paneled walls had been painted a light tan, with ceilings a dull ivory, and wood trim glistening white, the interior was the envy of every one along the beach.

What might have been just an ordinary, well-built summer home was transformed into a house of distinctive charm, different—and wonderfully attractive.

But most important of all to practical builders, the builder who built the house suddenly found he had



tapped a tremendous source of untouched profits.

"Who did the work?" was one of the questions that every beach-dweller asked.

And with his new knowledge of wallboard construction he was able to answer inquiries with confidence—to put through wallboard work that a few months ago he would have sworn was impossible.

Wallboard construction and wallboard plans have progressed.

Might as well compare the six-cylinder car of today with the struggling horseless carriage of 1905 as compare the results progressive builders are getting with wallboard now with the wallboard jobs of a decade ago.

Today you can buy fibre wallboard in widths as wide as 64 inches and in lengths up to 16 feet. You can build it up into beautifully paneled rooms, architecturally correct, finished in anything from beautiful Colonial vistas to an exact rendition of expensive wood paneling.

You can design and plan rooms in the best of approved taste, and you can even buy patented fasteners that eliminate every trace of disfiguring nail marks.

By using fibre-tile, which is wallboard with tile-like indentations, you can secure a beautiful tile finish for kitchen and bath.

Yes, wallboard has progressed!

Too many builders have failed to keep abreast of the procession. They still think of fibre wallboard in terms of the first more or less flimsy makeshifts used for cheap construction.

And, as a result, they are losing fibre wallboard profits that might just as well be theirs. They are



One of the Bedrooms in the Osborn Cottage Finished in Wide Panel Wallboard.

passing up business that's only waiting for the right man to get it.

The pictures of Mr. Alexander's home on the lake, shown here, illustrate what good wallboard can be made to do. And the detail of trim shows how the result was accomplished.

Once a builder masters fundamentals like these—think how his wallboard field is enlarged. Instead of a temporary material, wallboard for him becomes a staple building product, with which he can go into the finest homes and produce results worthy of their surroundings.

In winter, when outdoor work is slack, he can get job after job of remodeling and increase his profits accordingly.

Of course there is still a difference between grades of wallboard—just as there is difference between lumber. But the builder to whom this is addressed can tell good wallboard when he sees it, just as he tells first grade southern pine.

For after all, good wallboards are really manufactured lumber, built up into big stiff panels. And lumber lasts!

Yes, I wish I could take every builder in America to see this summer home on Lake Erie. And because that's impossible, I wish every builder who reads this article would look at the photographs of this job and study them and think what a few such jobs in his community would mean to him.

For in nearly every community wallboard profits are *waiting*—all ready for the man who sees them first.

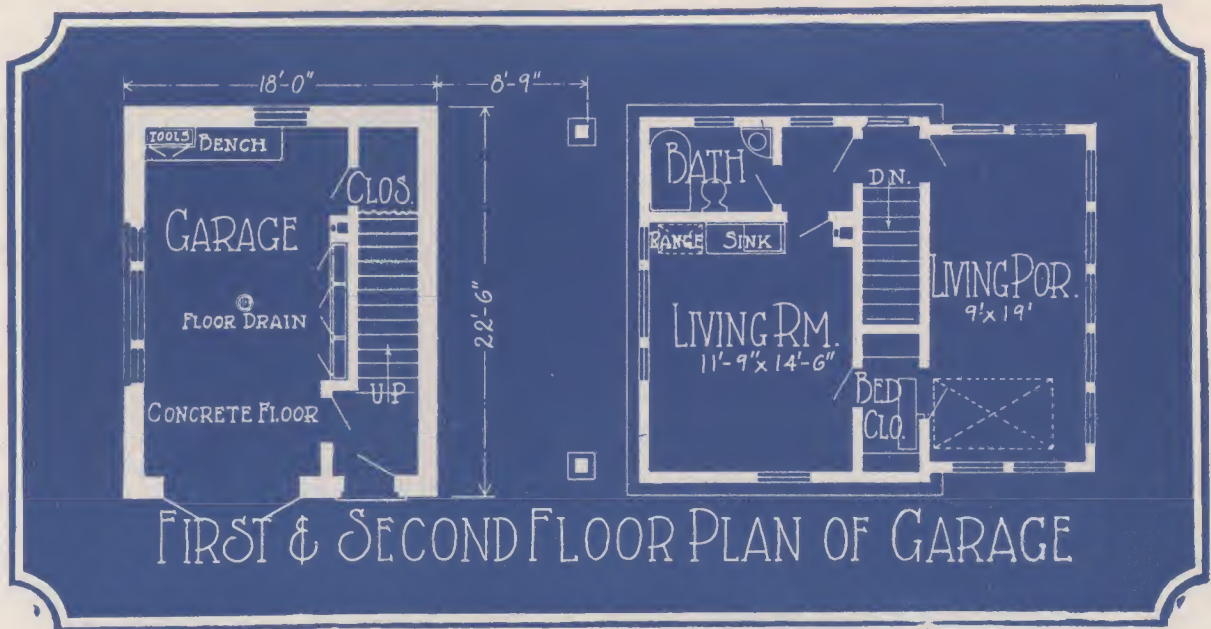


The Sun Room in the Alexander Cottage Is Typical of the High Grade Work in Fibre-board Finish Which Is Being Done Today.

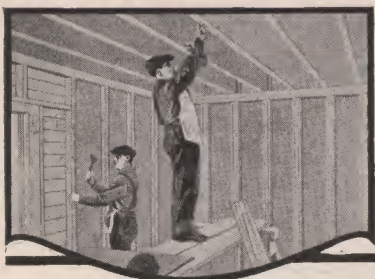
Garage with Living Rooms Above

MANY owners of cars feel the desirability of having a dependable chauffeur living close at hand in quarters where he may be available at short notice. Then, too, his wife often finds employ-

ment in another capacity in the same household. This illustration shows a very good solution of the proper housing accommodations for the chauffeur's family and for the car.



This Garage, with Chauffeur's Living Quarters Above, Sets at the Rear of the Lot and Follows the General Style of the Architecture of the Main Dwelling.



INSULATED CONSTRUCTION

Demand House Insulation

What Temperature Proof Roof and Walls Mean to the Architect, Builder and Home Owner in the Assurance of the Year-'Round Comfort

By H. D. BATES

WHEN you consider that only a few years ago house insulation, to the average person, was little more than a theory, and that today, in many parts of the country, it is considered one of the essentials to good building, you face one of the most sensational developments in the history of the building industry.

Yet the really surprising thing about house insulation is the fact that only in recent years has it come into general use. No one will deny that the ordinary uninsulated house has its weaknesses. Draughty rooms, north rooms that are hard to heat in spite of excessive fuel bills, are familiar to almost every owner of an uninsulated house. Nor is there anything new about the principle of heat insulation. Years of use in cold stor-

age plants, railroad refrigerator cars and the family "ice box" have made it familiar to everyone. The wonder of it is that it remained for the present generation to put these two facts together.

The insulated houses in this country today have demonstrated beyond all question that there is a vast difference between walls that are weather-proof and walls that are temperature-proof. The mere fact that thousands of insulated houses are being comfortably heated with 25 per cent to 33⅓ per cent less fuel than uninsulated houses of the same size is conclusive proof that a large part of the fuel bill in the ordinary house is waste. What is more, in the majority of these houses you will find at least 10 per cent less radiation and boiler capacity.



Insulating Material Takes Many Forms. One of the most effective and interesting withal is this type, evolved by a large producer of forest timber. It is really wood wool, fluffed; will not burn, and makes a snug blanket for wall or ceiling.



Every Insulated House That a Contractor Erects Is Another Turn of the Jack Under His Reputation for Good Houses.

House insulation makes possible some worthwhile economies that no home-builder can afford to overlook. In addition to these savings, the man who builds an insulated house enjoys a luxurious, year-'round comfort that only temperature-proof walls and roof can provide. His house is not only warmer in winter but cooler in summer. The insulated walls keep out the excessive heat of the sun and make the whole house, including the bedrooms up under the roof, cool and comfortable.

This story of insulation told by the manufacturers, the lumber dealers, the architects and the contractors has found a large and eager audience. Home-builders everywhere have been quick to see the advantages of this new building material. As a result there is today an already large and constantly growing popular demand for insulation.

What this Demand Means to the Contractor

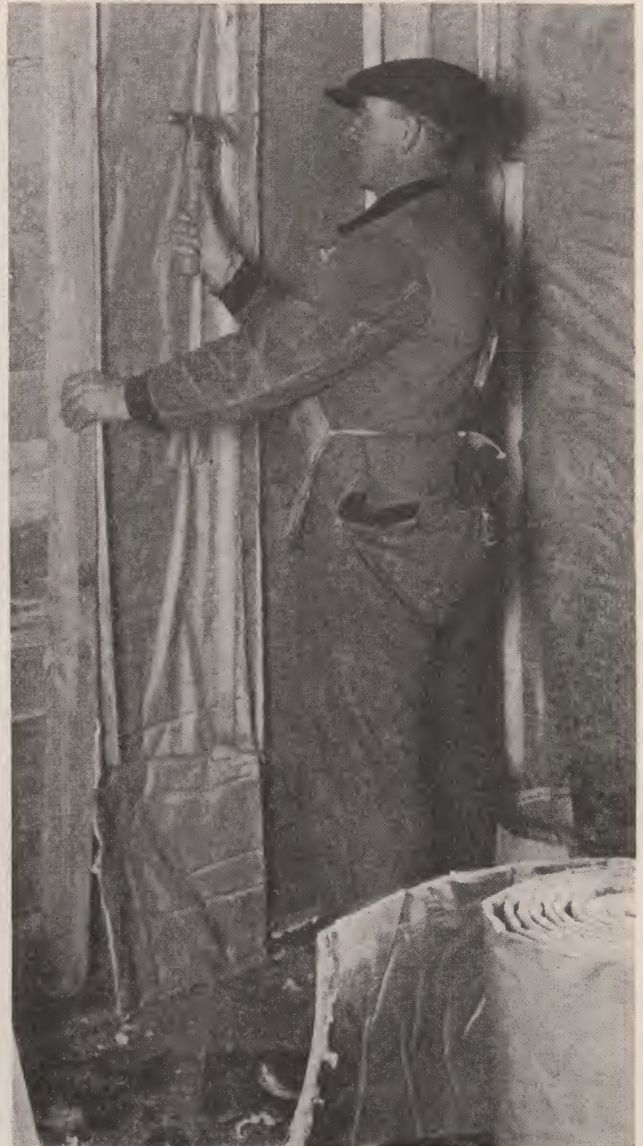
Let us say at the outset that it is the ambition of every good contractor to acquire a reputation for

the best built houses in his community. For when he has established a reputation for quality, he has little to fear from low bid competition. He can always find home-builders who are more interested in a sound house than a cheap price. To that end he is constantly seeking improvements both in construction methods and building materials that, without much additional cost, will add to the comfort, convenience and value of the homes he builds.

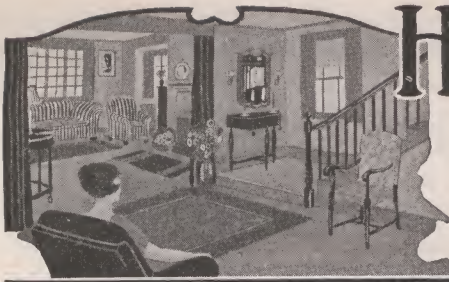
Every insulated house that a contractor erects is another turn of the jack under his reputation for good houses. For the insulated house will never acquire the reputation of being hard to heat or wasteful of fuel. Rather, will it be known as an economical fuel-saving home, comfortable and healthful to a degree hitherto unknown.

Nor need his bid on such a house be higher in any appreciable degree than his competitor's price on an ordinary house. The fact that he can reduce

(Continued to page 120.)



Certainly Not Hard to Manage, Is It? Just like nailing up cotton batting, and the carpenter is pleased because it handles so easily.



HOME DECORATING *and* FURNISHING

Curtains and Proper Hanging

Cost of Really Handsome Curtains Is Really Low and Proper Hanging Makes Even Inexpensive Material Effective

By JULIA W. WOLFE

FASHION decrees changes in curtains as in clothes; and following the dictates of hygiene, heavily-lined curtains of velvet, damask, brocade, etc., have made their way for lighter, gayer and less severe draperies for windows and doors. Light-weight curtains are more easily kept clean and more suited to our modern methods of furnishing. Even the cost is a matter of congratulation compared with the price of plush curtains a decade ago.

To begin with, the hangings of a window should be considered from two points of view—their ordinary appearance and their appearance when drawn across the glass. Also with net or lace curtains hung close to the glass, their appearance from outside the home must be considered. The main thing is to have all the windows on the front of the house uniform in treatment, otherwise the appearance is spotty and restless. Careful treatment as to detail is essential if the finished

result is to harmonize with and give the final touch to the interior as well.

While the selection of the material for window hangings is a matter of personal taste and requirements it requires discrimination, too. Expensive materials are quite out of place in rooms where the furniture is inexpensive. It may be noted, that while plain walls will carry either a plain or figured material, figured walls should, with a few exceptions, only have plain hangings. It always pays to purchase good quality of material for the life of curtains is usually from two to three years. Curtains also have constant handling and are subject to the influence of light, which is destructive also. For this reason it is often best to line them, or even interline them. Lining has the additional merit of giving weight to the curtains and they hang better.

In buying curtain material, the quantity should never



The Hangings of a Window Should Be Considered from Two Points of View. They must harmonize with the interior of the room which they help shade and decorate and harmonize with the exterior of the home itself. This is an excellent treatment of bedroom windows.

be skimped. It is essential to allow for ample fullness. An allowance equal to the width and one half is usually satisfactory.

As each room in a house has its specific purpose and the curtain should be chosen with this object in view. The windows of detached houses are more easily dealt with than those that are closely overlooked. In some instances this may be overcome by screening, or to use plain or fancy net sash curtains in addition to the ordinary casement curtains. The object is to insure privacy without the loss of light; these need be but for the lower half of the window.

There are both difficult and ugly windows, but there are few that are not improved by suitable fittings. The simplest way of making any curtain is just to have the material gathered on a pole, or rod, so that the curtain falls in front of the whole window; but this method is not advisable if the window be large, though it may suit a tall, narrow window. Another good thing is to have a valance, which may be plain or fancy in shape. Whether a straight or formal pilmet is used or a gathered valance the appearance of the window is greatly enhanced. The depth of the valance is a matter of taste, but the board should extend out at least 4 inches from the window frame. The frill or covering over this board need not obscure the light in any way if properly made.

Quite the simplest way of making a valance is to take a perfectly straight piece of material, leaving a quarter of an inch hem at the lower edge, with a 2-inch heading. Two rows of stitching make a running for the tape. Use strong wide tape, about 1 foot longer than the board. Sew it securely at one end. Mark the half and quarters of the frill with pins, and gather it evenly with the tape. The valance is then ready to be fixed. For this use either strong drawing pins or brass tacks. Valances can be box-pleated; in fact, they often are made this way when made by an upholsterer.

However, with some windows a stiff valance of the material is all you need. This may be fixed to a wooden lath; the rod on which to carry the curtain is fixed underneath. In this case the curtain can be at either side of the window and left flowing or tied back. The professional way is to make the valance stiff with buckram.

Rods should always be selected with care; those that will not warp, rust and bend are the kind to select.

Wooden poles are seldom used these days as curtains are light in weight. Another thing is the number of rings on a rod. Quite commonly two rings are supplied to each foot of rod, which means 12 rings for a foot width. This is not sufficient to prevent sagging at the top when they are drawn back. Hooks or sewn-on rings every 4 inches will be found more satisfactory. There should be a heading 1½ inches deep above the hooks or rings.

A new curtain fitting has greatly simplified the hanging of window drapery. Two distinct types of the same runner are made, one heavier and more substantial to take curtains of any weight and a lighter one specially designed for hanging casement, lace or thin fabric curtains. They are made on the same principle. Small wheeled runners travel along a metal rail which is sufficiently flexible to be bent to follow the contour of any window. The slightest touch sets the runners in motion; no dragging or pulling is required. Hence the life of the curtain is prolonged. Spring stops are supplied with the runners, so that they may

(Continued to page 111.)



The American Home of Today Draws Its Luxury and Comfort from Past Ages. But the home builder and home maker devote their time to using all modern conveniences, too.

Revising Building Codes (Part 8)

U. S. Government Recommends Minimum Requirements for Small Dwelling Construction with View Towards Simplifying Building Codes

EDITOR'S NOTE: This is the eighth of a series of abstracts AMERICAN BUILDER is making from the Report of the Building Code Committee, Department of Commerce. Readers interested in the full Report can secure it by sending 15 cents to the Superintendent of Documents, Government Printing Office, Washington, D. C., and asking for the Report by its name, "Recommended Minimum Requirements for Small Dwelling Construction."

Par. 42. Roof Covering, Cont'd.

3. Any roofing material of a grade not lower than class C as established by the Underwriters' Laboratories would be satisfactory for dwelling-house roofs. A large number of such roofings suitable for flat or sloping surfaces have been tested and approved.

4. A list of approved roofings can be obtained upon request addressed to the Underwriters' Laboratories, Chicago, Ill.

5. Probably no type of roof covering has caused more comment and discussion than the wooden shingle. The great danger of the wooden-shingle roof is from chimney sparks and flying brands from burning buildings or bonfires. The danger from chimney sparks is largely confined to wood or soft-coal fuel and the sparks resulting from the burning of chimney soot.

6. The wooden shingle has various well-recognized merits. It is light in weight, has excellent insulating value, thus promoting comfort by equalizing attic temperatures, can be easily applied, furnishes attractive architectural effects and high-grade shingles properly laid produce a roof having excellent durability.

7. Staining or creosoting the shingles tends to maintain a smooth surface and incidentally improves their fire resistance. Few if any of the compounds used for treating shingles directly increase the fire resistance. If rain water for household purposes is to be collected from a roof, care must be taken to select treated shingles which will not contaminate the water.

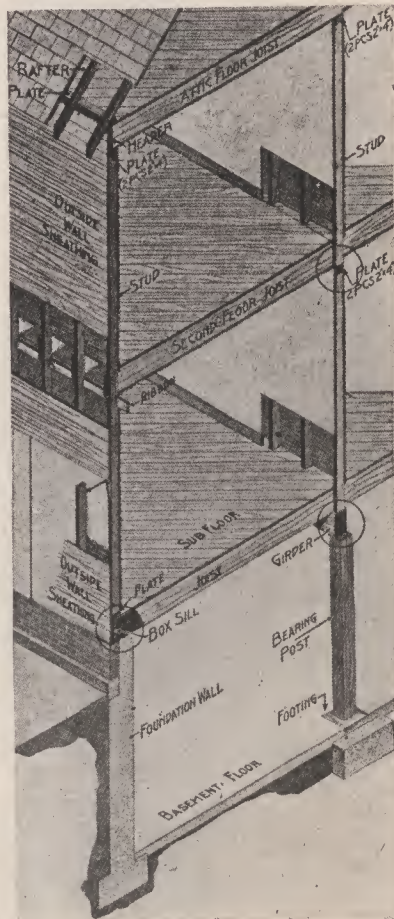
8. When wooden shingles are used the very best grades of shingles available should be obtained, as they are more economical to the house-owner in the long run than cheaper grades and prolong the life of a smooth-surface roof, thus promoting safety. For best results use edge-grain shingles free from knots and other imperfections and having a thickness at the butt not less than that represented by five shingles in 2 inches (four-tenths inch each). Shingles are made in 16, 18 and 24-inch lengths. Sixteen-inch shingles on a roof having a one-half pitch or greater should be laid 4½ inches to the weather; 18 to 24-inch shingles can be laid safely with larger exposure.

9. Ordinary wire nails are entirely unsuited to hold shingles. They rust out long before the shingles decay.

Hot-dipped, zinc-coated, cut iron nails are the best. Par. 43. Desirability of Plaster.

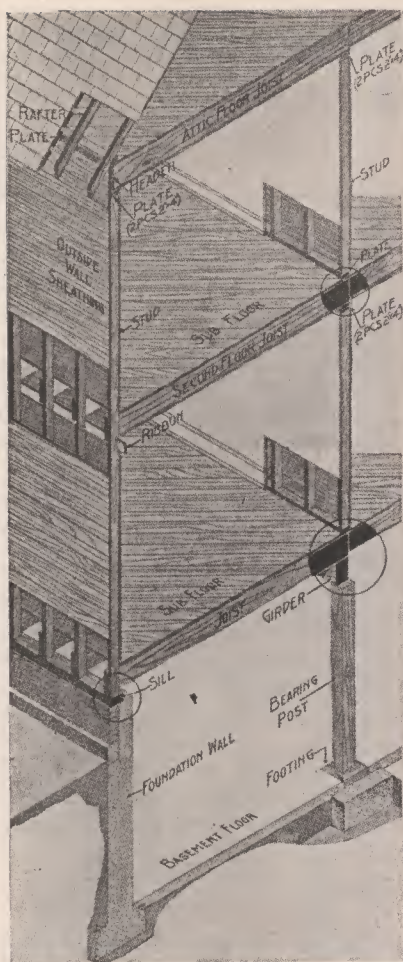
The committee is of the opinion that a requirement for the universal use of plaster in dwelling construction is not within the scope of a building code. Its value as a heat and sound insulator, for purposes of fire protection, and for decorative and other uses is such that only the strongest cost considerations justify its omission. Where used, and where paid for by the builder or buyer of a residence, it should conform to certain standards which will insure successful performance of its nominal functions. In localities subject to high winds and where plaster is not used it is advisable to anchor the frame of a wooden dwelling to the masonry foundations sufficiently to obtain the element of stability otherwise resulting from the weight of the plaster.

The following discussion of plastering practice outlines these desirable standards.



If a Building Is Framed to Equalize Total Height of Horizontal Timbers, Their Relative Positions Remain Same After Settlement Occurs. This helps avoid plaster cracks.

In no place is the importance of good, honest construction more evident than in the plastering of a house. If the general construction is neglected or skimmed, the results are shown by the unsightly cracking and sometimes dangerous falling of the plaster. Therefore, the committee, realizing that under the best of conditions it is impossible to avoid all cracks in plastering, wishes to emphasize the necessity of good building. Following are some of the common causes which result in cracked plastering: (1) Inadequate or faulty footings under bearing posts.



Wood Shrinks Crosswise, Not Lengthwise of the Floor. A dwelling framed as above will in time settle from 1 to 2 inches in center than at walls, cracking the plaster.

(2) Too small girders or too few bearingposts. (3) Joists of insufficient size. (4) Joists under partitions not doubled. (5) Improper framing over wide openings. (6) Uneven settlement due to shrinkage of wood frame improperly designed and constructed. (7) Chimney not independent of the frame. (8) Settlement of wall footings and foundations. (9) Separation of partitions from walls. (10) Failure to conform to good plastering standards.

When gypsum wall board is used in place of lath and plaster, it should conform to the specifications of the American

Society for Testing Materials. Gypsum plaster board may be used instead of wood or metal lath except where the latter is specifically required. When thus used it should conform to the specifications of the American Society for Testing Materials. (See Appendix, par. 10.)

Various substitutes for plaster and plaster board are on the market and classed under the general term "fiber boards." Such boards provide an economical wall surface, but they are subject to the same influences as wood sheathing, resulting in shrinkage and warping, and should be kept in a thoroughly dry condition from the time they are manufactured until applied. Their use should be restricted to construction where their inflammability will not constitute a serious hazard.

The following extracts are from specifications indorsed and adopted by the executive committee of the Fibre Wall Board Manufacturers' Association.

1. The moisture content of the board shall be restricted to a minimum of 10 per cent and a maximum of 15 per cent, giving consideration to climatic conditions where board is to be used.

2. Surfaces shall be covered with a priming coat or coats that will afford maximum protection from atmospheric moisture, at the same time providing a satisfactory and practical painting surface.

3. Wherever possible, the minimum size decorative strip to be used shall be 3 inches wide and one-half inch thick, and this decorative strip, as well as the panels of board, shall be well nailed and care be given to the selection and structure of studding and joists.

4. Fiber wall boards shall have a minimum thickness of three-sixteenths inch with permissible local variations of one sixty-fourth inch.

5. The weight of fiber wall board shall be not less than 475 nor more than 600 pounds per 1,000 square feet.

6. The strength of fiber wall board shall be sufficient to stand a weight of not less than 125 pounds, hung from a three-fourths-inch round iron rod placed across a strip 12 inches wide, nailed across pieces of regular studding, placed on 16-inch centers, the rod to be parallel to and halfway between the studding.

Par. 44. Preparation of Base for Plaster.

1. When plaster is to be applied directly to masonry surfaces these should be rough in texture but not uneven; free from dust, laitance, or other loose material which will prevent a good bond between plaster and wall; and particularly from grease, which will cause discolorations. The wall surface should be wet enough so that it does not withdraw water from the plaster, but not so wet as to fill the surface pores and prevent good bond or interfere with hardening. Care in this respect is not so important with lime plasters as with gypsum.



Curtains and Proper Hanging

(Continued from page 109.)

be placed where required to get any particular effect in draping.

Windows which open inwards can either be fitted to a brass swinging arm which is fixed to the window frame, and so moves independently of the windows, or brass rods can be fitted at the top and bottom of the windows.

All sorts of good effects can be obtained by borders of cretone on a plain self-colored casement cloth, as a casement border to a cretonne curtain. The scheme may be striped worked in alternately with casement cloth or cretonne, the stripes of which can be joined by an insertion stitch. A delightful notion is applying motifs of ornament cut from cretonne and button-holing them all around on the curtain with cotton or flaxen thread.

Quite a good effect is secured by having long curtains at the outside parts of the window frames and small half-way ones curtaining the intervening window spaces. These curtains may be left loose just gathered onto a rod at the top, or two rods can be used, top and bottom, and though the curtains be gathered onto these, a taut effect should be the result.

CORRESPONDENCE DEPARTMENT

Questions Answered Ideas Exchanged

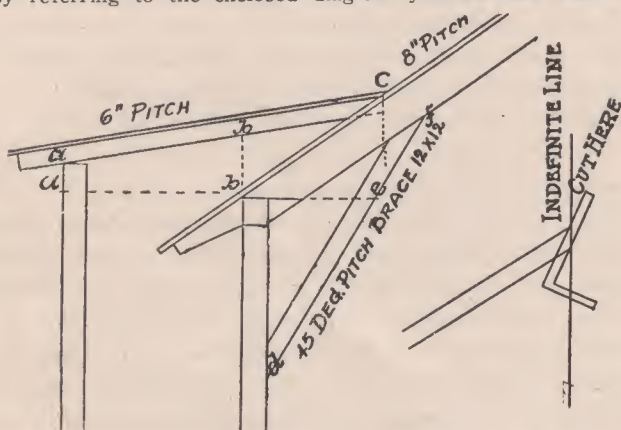
Framing Rafters for Unequal Pitches

To the Editor:

Pittston, Pa.

Some one asked how to frame rafters for unequal pitches, —or how to get the cuts and length of rafter for one roof to mitre another one. In the May number I see an answer from Mr. E. M. Murphy which, while correct, does not work out for a man on the job. What he needs is not a graphic, but a practical way.

Mr. Murphy does not state which figure to use on the square. Now my way is this: Suppose we have a $\frac{1}{3}$ on an 8 by 12 main house, and want to butt a $\frac{1}{4}$ pitch, or 6-12, against it—or any other pitch you may desire. Well, by referring to the enclosed diagram you will see that by



Mr. Brandenburg's Diagram Showing How to Butt a $\frac{1}{4}$ Pitch Against a $\frac{1}{3}$ Pitch Roof.

running the square 6-12 as many times as feet, and in distance from A to B, then the difference in 6-inch pitch and 8-in pitch equals 2. So run two times from B to C; then you will have plumb cut here. Now to get a cut for an 8-inch pitch you draw line on plumb cut, and then apply square on this line, 8 and 12, and you will get cut on 12.

Now suppose you wanted to put a brace from post to center of rafter in order to stiffen it; it will be found the same way. The brace being a 12-inch pitch you run as many times as there are feet from D to E. The roof being an 8-inch pitch, the difference between 12 and 8 is 4, so run 4 times more, 12 and 12, to F. That will give you a level cut on top, so draw the level line indefinitely and apply square as before, 8 and 12, gives the top cut. The bottom cut is, of course, 12 and 12 cut on 12, as also the roof in first was 6 and 12 cut on 12.

I learned this from a copy of AMERICAN BUILDER several years ago, and have read your publication from the start.

Now here is another trick worth knowing, and a practical way to do it. Suppose you were putting on siding on a house where a kitchen or other addition is built against it, as, for instance, in the attached illustration.

The question is how to get the siding to run right at the intersection on the roof of the abutting house. First mark with dividers on the corner board, then use a good level on the roof, and level each piece of siding, and you won't go wrong.

There are so many things to learn in order to know how to proceed when you are on a job that I would like to give each reader a few pointers on what I have done to

educate myself on the use of the square and its usefulness, and that is—get all the good books relating to your trade that you can. I have almost every book that is printed by the Radford Publishing Company, and if you could only realize their worth you would get them without delay. (Thanks! Editor.) The cheapest way to get them is through purchasing Radford's Cyclopedia of Construction—12 books and you have it all. Also get the book "The Steel Square as a Calculating Machine," by John Phin, published by the U. P. C. Book Company.

Also get "Ropp's Lightning Calculator" and the International Correspondence School's "Builder's Pocket Book." The price of these last two is \$1, and if one studies these up they will find practically all their questions answered.

A man of sixty-five, it seems foolish to me sometimes to see the simple questions asked—but then, mathematics is my hobby, and a carpenter needs to know measurement, geometry, Euclid, the rule of proportion, square root, and a lot more. How many carpenters could lay out a roof with only a two-foot rule; or, in estimating shingles for a house, estimate exactly the number required by standing on the ground; or how much siding to order? It requires study and thought. We should think—and then think some more. Take my advice: get the Radford Cyclopedia; no matter what the cost you will never be sorry.



LOUIS BRANDENBURG.

So Say We All: Avoid Shoddy, Give Our Best to Customers, and Make Them Our Friends

To the Editor:

Auburntown, Tenn.

I am sending a picture and floor plan of a bungalow that I have built and completed, recently, for Mrs. Helen Estes. Mrs. Estes, a widow and a farmer, designed this building herself, and was built by us to her entire satisfaction. It has a solid concrete foundation, with concrete footings and concrete porches. The house is a frame structure, storm-sheathed, and whether-boarded with best poplar siding, with composition shingle roof. There is no inferior material or shoddy work at any place in this building. The interior is finished in a modern way with many conveniences that are not shown on floor plans. The rooms are all large size—three bedrooms and landing hall on second floor, together with all the storage and closet room that may be necessary for an ideal southern country, farm home.



No Inferior Work or Shoddy Material in This Bungalow Built by Mr. C. M. Cooper. A southern location makes good veranda space desirable.

I am a constant reader of the AMERICAN BUILDER, and have been for many years. I also read other good building journals but I think the AMERICAN BUILDER the best in the field. I find many good ideas and lots of information on the pages of the AMERICAN BUILDER. All the best building material and good tools are also advertised there—I expect to be a subscriber so long as I live. I have been a carpenter, contractor and builder most of my life, and there is a warm place in my bosom for all the good brother carpenters. I fight no man with low prices but I try to avoid all shoddy construction and give my customers the best I have and make them my friends.

C. M. COOPER.



Three Answers to Correspondents From Mr. J. H. Nicholas

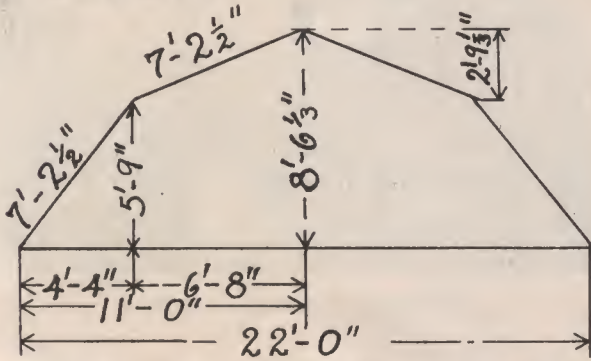
To the Editor:

Baltimore, Md.

I am enclosing answers to a few problems in the building line asked in the August issue.

In answer to Mr. Carey of Moosic, Pa., desirous of the method of finding the point on a gambrel roof (as per sketch in the August issue of the AMERICAN BUILDER) I am enclosing the following sketch worked out and hope it may serve his purpose.

First section has a pitch of 12" to 9" of run, which gives approximately $5\frac{3}{4} \times 9 = 52"$ or 4' 4" of run, and a rise of $5\frac{3}{4} \times 12" = 69"$ or 5' 9".



Section of Gambrel Roof Showing Method of Finding Roof Point as Submitted by J. H. Nichols.

The second or upper section has a rise of 5" to 1'. After deducting the 4' 4" from one-half the width of span (11) we have left 6' 8" or 6 $\frac{2}{3}$ ', which, multiplied by $\frac{5}{12}$ ", gives 33 $\frac{1}{3}$ " or 2' 9 $\frac{1}{2}$ " rise.

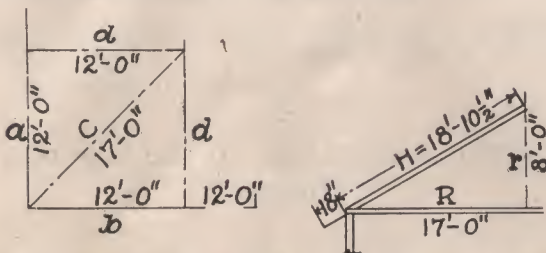
With the above triangles, we proceed to extract the hypotenuses and obtain 7' 2 $\frac{1}{2}$ " in each case.

Answering Mr. Rodney Smith, Detroit, Mich.

We will assume the width of house, in sketch (1) to be 24 ft.

Take one-half width of span, or width, 12', and 12' on the side of house at right angles to the length just taken; find the square of each of the sides separately, add the sums together, and extract the square root, which in this case is as follows: c is the length required.

$c = \text{square root of } 12 \times 12 \text{ plus } 12 \times 12 \text{ feet which is } 17 \text{ ft.}; \text{ therefore, the run (c) is } 17' \text{ long.}$



Sketch Showing Mr. Nichols' Method of Obtaining Lengths of Hip and Jack Rafters.

(2) Having obtained the run (c) which is the same as "R" in sketch (2) we proceed to find the length of rafter.

We will assume that it is $\frac{1}{2}$ pitch, then the height of crown or rafter will be one-third of width of span above top of plate.

Span being 24', we have $24 \div 3 = 8'$, pitch of roof, or rise, marked "r".

Now proceed in the same manner to get length of rafter that we just used to get length of run.

$H = \sqrt{R^2 + r^2}$; or, $H = \sqrt{17^2 + 8^2} = 18.78'$ or 18'-10 $\frac{1}{2}$ ".

If it is desired to give a cornice 1' wide, add 18" to the length.

A simpler method, and one frequently used by persons not familiar with the above method, is to take the steel square and find the figures on it that are given in the desired building, and proceed as follows, taking the above figures, e.g., take 12" on the blade and 12" on tongue, measure across (diagonally) with a pocket rule or square, and you get 17", the run. Then with 17" on the blade and 8" (rise) on the tongue, measure across and you get 18 $\frac{7}{8}$ ", which, multiplied by 12, gives 18' 19 $\frac{1}{2}$ ".

The lengths of jack rafters are obtained as follows: Find the length of common rafter, which in the case above is 14' 9"; divide that by the number of spaces between the first common rafter and the corner of plate, which is 6 (24") centers, giving 2' 5 $\frac{1}{2}$ " as the common difference between rafters. We subtract 2' 5 $\frac{1}{2}$ " from 14' 9" for the longest jack and find we have 12' 3 $\frac{1}{2}$ ", then we subtract 2' 5 $\frac{1}{2}$ " from that for the next, and so on until we find the shortest one is just 2' 5 $\frac{1}{2}$ ".

Answering H. W. Ruffner's "Problem in Estimating":

If a house 30 ft. by 30 ft. cost \$12,000.00, would one 28 ft. by 28 ft. cost, on reasonable presumption, \$10,500.00? is the question, in short.

Since there are a number of things which have not been included in the information given, it would be a difficult matter to arrive at an exact answer unless supplied with the information.

However, we will assume that all things being equal except the actual outside dimension, and take it as follows: A house 30 ft. by 30 ft. contains 120 ft. linear ft., outside wall; \$12,000 divided by 120 ft. equals \$100 per linear foot. The house 28 ft. by 28 ft. has 112 linear ft. outside wall, 112 ft. at \$100 per foot equals \$11,200, which is as near to it as one can get without going through the process of actual estimation, which I strongly advise.

J. H. NICHOLAS.



Says Mr. Carey's Roof Not Correctly Proportioned

To the Editor:

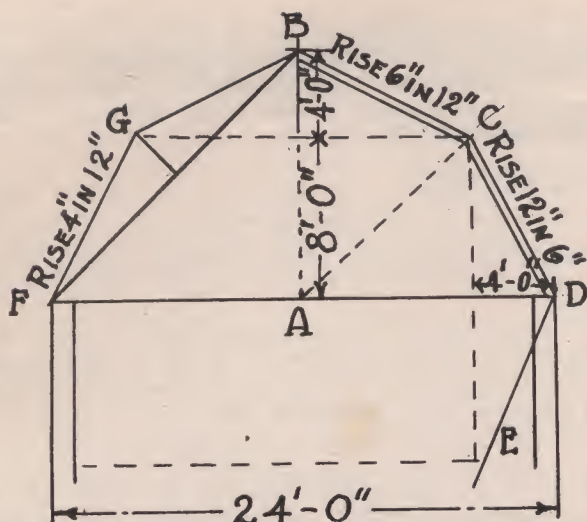
Appleton City, Mo.

Mr. Carey, your roof is not correctly proportioned. As I understand a gambrel roof, the top or comb is as high as if it was a half pitch straight roof.

I have taken a width of 24 feet, so there would not be so many fractions. The distance from A to B is the same as A to D, or one-half the width of the building—in this instance 12 feet. The point C is on a 45-degree angle from A. The cut at B and D is 6 in 12 and at C 4 in 12, as you will see by looking at F G B. The cut at C is really 4 in 8 but that is the same as 6 in 12.

The line D E is drawn to show that C D E is the same as G B C. On this roof I would cut the rafters $\frac{5}{8}$ inch less than 9 feet long; one pattern cuts all of them. One end 6 in 12 and the other 4 in 12 will not quite fit; I cut them 8 $\frac{1}{2}$ in 24 and they fit better. Incidentally I wish some good mathematician will tell me why that 4 in 12 cut will not fit at C. That is one thing I cannot understand.

On your 22-foot building your comb should be 11 feet above plate and the joint at C would be 7 feet 4 inches above plate; that is, one-third the width of building. Now if you use this proportion on any size building, one pattern will cut



Mr. Elvins Submits This as the Properly Proportioned Gambrel Roof. Compare it with Mr. Nichols' reproduction of Mr. Carey's.

all rafters and you will have a roof that will look well because it is geometrically correct. Some people cut bottom rafters longer than top ones and they never look right. Answering your question as you have put it, I will say that the point you want will be about 5 feet 11 inches above plate and your comb will be about 9 feet above plate. This will not look right and does not give enough hay mow. Better to have a straight pitch roof.

If any reader sees anything wrong with my solution I would like to hear from him.

LINN ELVINS.

Other readers sending in correct solutions for Mr. Carey's problem were A. R. Rist, Moundsville, W. Va.; B. Rust Brown, Vanduser, Mo.; O. F. Plum, Petersburg, Neb.; Lee A. Brink, Wichita, Kans.; W. J. Adams, Albion, N. Y.; F. Roseberry, Wilson, Wis.; James A. Wood, Baltimore, Md.; D. S. Wilkerson, Shreveport, La.; and V. A. Spurling, Cle Elum, Wash; Lee A. Brink, Wichita, Kans.; Edward A. Fiord, St. Louis, Mo.; Wm. E. Bond, Detroit, Mich.



Wants to Know Cuts of Rafters for Mr. Carey's Barn

To the Editor: Cle Elum, Wash.

Now that Mr. Carey's gambrel roof problem is answered, will somebody answer mine:

How do you find the cuts where the two rafters meet?—V. A. SPURLING.



Many Good Suggestions

To the Editor: Rochelle, Ill.

I was very much interested in your article in the July AMERICAN BUILDER in regard to garages for the better home. I wish you had gone a little further. We meet, in the smaller towns, the problem of caring for the winter fuel. The garage should have the cellar excavated and bins made for this, with manholes or openings of some kind made in the floor of the garage so that the fuel may be dumped into the bins from auto trucks. Very few builders anticipate caring for the fuel and it is necessary in most cases to drive across the lawn, cutting it up badly, or else to have the fuel carried, which involves an expense of about 75 cents a ton. If the garage has an excavation beneath, the doors from the cellar may be left open in winter and almost enough heat will rise to keep the radiators from freezing. Many people use different kinds of fuel and the garage cellar may be divided to accommodate them. Country places are also deficient in storage room which may be provided in the attic for the

storage of storm windows in summer and window screens in winter. The cellar is a bad place for either. I also think there should be a sub-cellar for the winter accumulation of ashes into which they may drop direct from the furnace, same with independent water heater if coal is used, and these ashes to be taken out once a year, the same as is done with grates. Let's do away with Queen Anne front yards and Mary Ann back yards and unsightly piles of ashes. I hope you will consider these rather crudely expressed suggestions worth consideration.

Yours truly,

R. C. BRUNDAGE.



Builds Fine Barn and Pays Nice Compliment

To the Editor:

Bristow, Okla.

Here are two pictures of a Gothic roof barn 30 feet by 50 feet I just completed for a farmer eight miles north of here and built from plans in AMERICAN BUILDER.



Showing the Framing of the Barn.



The Completed Gothic Roof Barn Erected Near Brustow, Okla., by Mr. Jackson.

I think it is the greatest magazine ever published and I could not get along without it.

A. JACKSON.

"Builder of Better Homes."



Getting a Butt Cut on the Side of a Hopper

To the Editor:

Wilmington, Dela.

How does one get the butt cut on a side of a hopper with the steel square?

WALTER D. CARPENTER.

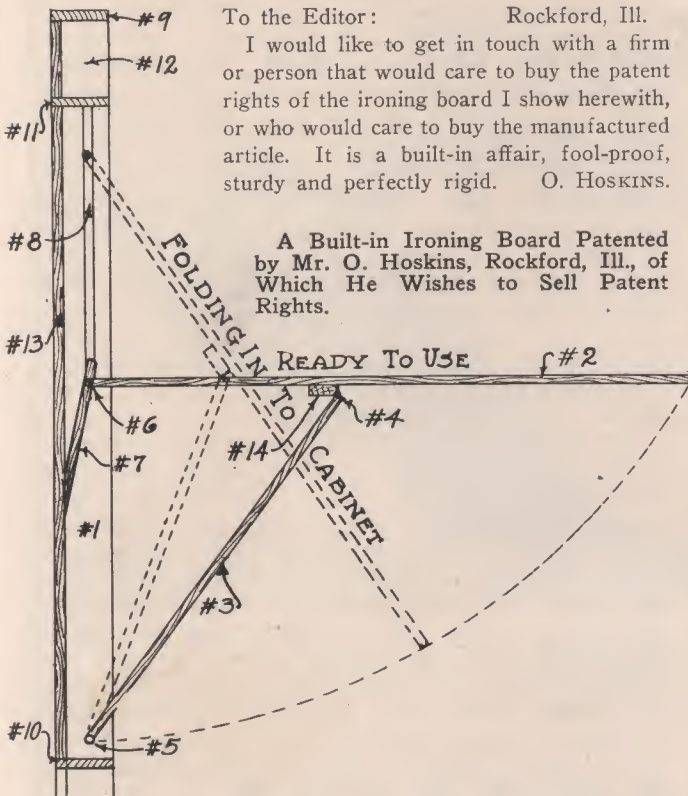
Patents New Ironing Board; Wants Market

To the Editor:

Rockford, Ill.

I would like to get in touch with a firm or person that would care to buy the patent rights of the ironing board I show herewith, or who would care to buy the manufactured article. It is a built-in affair, fool-proof, sturdy and perfectly rigid. O. Hoskins.

A Built-in Ironing Board Patented by Mr. O. Hoskins, Rockford, Ill., of Which He Wishes to Sell Patent Rights.

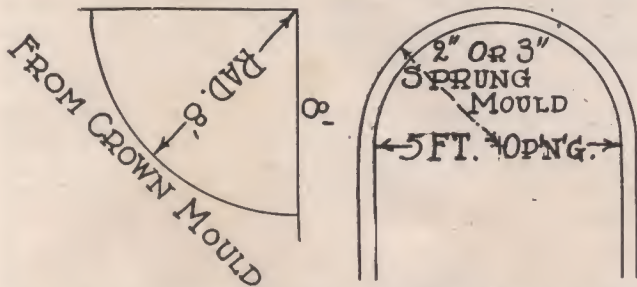


Making a Sprung Crown Mould

To the Editor:

Mt. Sterling, Ky.

I would like to know the simplest rule for making a 4- or 5-inch sprung crown mould on the corner of a porch. Also



Mr. E. L. Robertson, of Sterling, Ky., Wishes to find Simple Rule for Making a 4 or 5-Inch Spring Crown Mould Like Sketch.

for making a sprung crown mould over the head of a door frame. E. L. ROBERTSON.

Wants to Know How to Cut Hip Roof

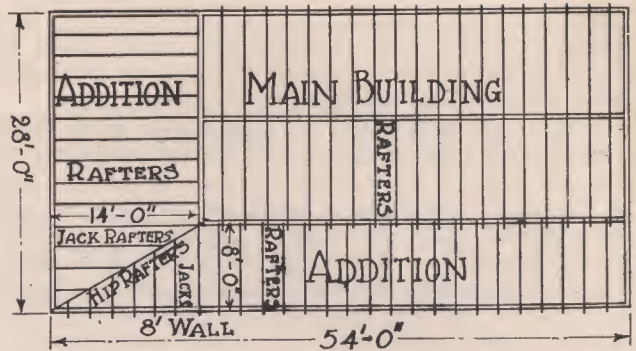
To the Editor:

Agassiz, B. C., Can.

This drawing shows a roof plan of a main building 20 feet by 40 feet, with an addition of 8 feet on one side and 14 feet on the end. The roof runs into the main building at a pitch of $6\frac{1}{2}$ on 12. I had to make it $6\frac{1}{2}$ so as to bring the roof below certain windows.

Where the two additions join at the corner is where my trouble comes in. As the hip rafter will run to the corner of the main building, and will be 14 feet on one side and eight feet on the other, it will not be exactly a hip rafter, will it?

I wish to know how to cut this so hip will be square, on the ground. In other words, I wish to find the length, and



Here Is a Corner Problem. Mr. Bates wishes to find the length and get the cut of the jack rafters for the corner shown.

also get the cut for the jack rafters for this corner. Also the difference in lengths on each side.—EDWARD C. BATES.

How Would You Build This Floor?

To the Editor:

South Whitley, Ind.

How can the floor of a building be deadened? In this case it is two stories, and the first floor will be used as a drug store provided the sound of the machinery in a garment floor on the second floor can be deadened. It will not be a concrete floor.

JAMES KALER.

Offers Easy Method for Roof Framing

To the Editor:

In your November issue I read the article of C. M. Biddison on roof framing with interest. His method is more or less correct, but difficult to understand and practice.

In my system I do not use any figures, because fractions take too much time—namely, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{1}{4}$, $\frac{3}{8}$, etc., pitches. There are no such pitches on the square. The square is the instrument that we use to lay out the pitches of a roof, so the first question a reader asks, on seeing such terms in print, is: What is a $\frac{1}{3}$ pitch, or what is a $\frac{3}{8}$ pitch?

The pitch of a roof is ALWAYS so many inches to the foot. If we mean 8 inches to the foot, why not say so? If we mean 6 inches to the foot, say so, as those are the figures that must be used on the square to get those pitches.

I shall use the same dimensions as Mr. Biddison did, so the readers can compare my method with his to better advantage.

In a house 28 feet wide, the run of your common rafter is half the width of your house. If you want the rafters to meet at the middle of the house, which, in this instance, is 14 feet, if your pitch is 8 inches to the foot, and you have a run of 14 feet, you must multiply 14 by 8 to get the total height of your pitch, which in this case would be 112, or reduced to feet would be 9 feet 4 inches. Now, my little boy says, it is easy to find the length of common rafter, for all I have to do is to cut a stick 9 feet 4 inches long and set it up plumb in the middle of the house on top of the plate, and get the length from the top of my stick to the outside of the plate, which will be the length of the common rafter. But we will go at it a little differently. In the first place, if you are a contractor, you have a steel square that is laid out in one-twelfths on one side; if not, get one. If Mr. Biddison had used that kind of a square he would not have run into any $\frac{13}{16}$, $\frac{13}{32}$ or $\frac{14}{7}$ 16.

Now, to get the common rafter, we take the run on the square, which in this case is 14. We take 14 on the blade and we take $9\frac{4}{12}$ on the tongue, which means 9 feet 4 inches, then lay another square from the 14 on the blade to the $9\frac{4}{12}$ on the tongue and the hypotenuse of that triangle is the length of our common rafter, in this case 16 feet 10 inches. A still better way is to lay out 14 feet on the edge of a board with a knife (a pencil will not do), then

square up $9\frac{4}{12}$ on the tongue of your square across the board and the hypotenuse from the $9\frac{4}{12}$ to the 14 on your board will give you the length of your common rafter.

Now to find the length of your hip or your valley rafter, proceed in the same manner; lay out the run on the edge of a bench. Make a mark where you start to measure from on the edge of your bench or board, call that mark A, make the mark with a knife, then measure 14 inches from that mark and make another mark with your knife. Call that mark B. That is your run, and also represents your plate; now square up across the bench the length of your common rafter from mark B, which in this case is $16\frac{10}{12}$, meaning 16 feet 10 inches, and make a mark there with your knife. Call that mark C. You have two sides of a triangle, the run and the length of your common rafter. The hypotenuse from A to C is the hip rafter. You now have a complete triangle. Proceed to fill your jack rafters. If they are to be spaced 2 feet O C you lay the blade of your square along the line on your triangle representing the common rafter, make a long mark on the inside of your blade with your knife from the plate line up to the line representing the hip, and as your blade is 2 inches wide you have your first jack rafter in place on your plan. Proceed the same way with the rest of the jacks, move your square down the width of the blade each time and make a new line with your knife for each jack until you have filled in all your jacks on the plan, then put your square on the first jack to see how long it is, mark the length on the first jack, do the same with all the other jacks on your plan, also mark the length of your common rafter, your hip, then tell your men to cut so many hip rafters so long. It takes four pairs of each length of jacks if you have four hips. You can lay out the above plan and get all your lengths for an ordinary house in three minutes without any figuring. There is another thing you must bear in mind, the above measurements of rafters are taken from the plate to the top of the rafter, making no allowance for lookouts. If you want the lookout of the same rafter, you must add the lookout after getting the length of your rafter. In that case you must take the length of your rafter on the middle of the rafter, or to be exact, $1\frac{1}{2}$ inches below the top edge of rafter. Then you will have the thickness of your lookout $1\frac{1}{2}$ inches on top of your foot cut. The rafter will be a little longer at the upper end above where you took your measurement, otherwise it would not fit at either end. Of course the plumb cut and your foot cut are the same on your jacks as they are on the common rafters.

Why cannot the cheek cut be cut at 45 degrees on your jack rafters? It can be if the common rafters are as long as your run, but in this case your run is 14 feet and your common rafter is 16 feet 10 inches. For that reason, if you want the cheek cut to fit, you must take the run 14 on the tongue on the square and the length of the common rafter on the blade of the square, which in this case is $16\frac{10}{12}$, cut along your blade mark, then it will always fit.

Remember, always take your run on the tongue and the length of your common rafter on the blade, and cut along the blade mark and your cheek cut will always fit, regardless of pitch.

You could also step off your rafters as Mr. Biddison suggests, one step of 12 inches for each foot of run, if it was not for the reason that it is not a quick or correct way to get the length. If you should slide your angle of the square ever so little it might make a difference of $1/16$ and $1/16$ on a 14-foot run would amount to $14/16$.

It is also true that you could get your length the same way on your hip, by stepping it 14 times with 8 to 17, but the same objections apply. If your pitch is 8 inches to 12 inches your hip cuts are 8 inches to 17 inches, because the hypotenuse of 12 inches to 12 inches is 17 inches. Consequently no matter what pitch you have on a roof, the rise you use on the common rafters will always work out on 17 inches on your hips, so if your pitch is 4 inches to the inch your hip cut would be 4 inches to 17 inches. Your 17 inches is equal to the foot run on your common rafters, or, in other words, if 12 inches is your foot run on your common rafters, 17 inches is your foot run on any hip or valley rafters.

If I have succeeded in making the above explanations of roof framing more easily understood for some of the AMERICAN BUILDER readers, I will be satisfied.

J. W. ENGBERG.

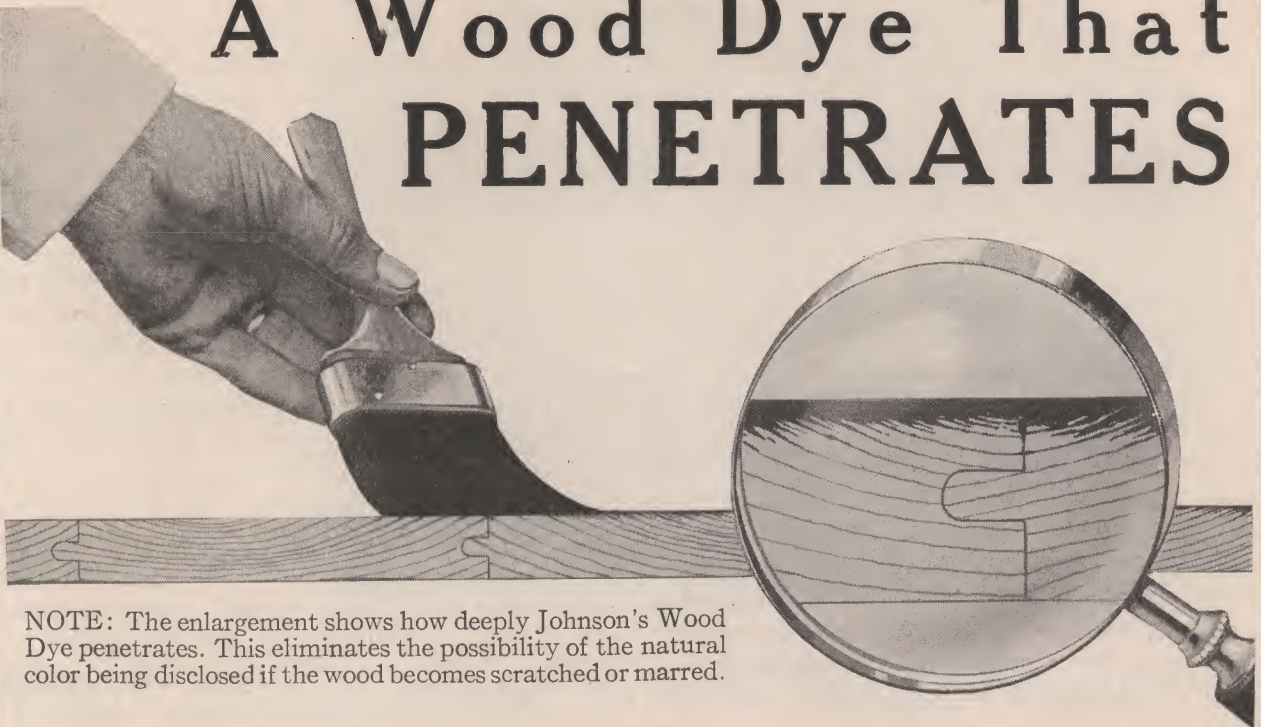


There's a wealth of roof construction information in this Correspondence Department of AMERICAN BUILDER. Several of the letters were held for some time to enable us to gather together many good practical rules for roof framing and present them to our readers. We urge readers to save these suggestions and refer to them from time to time when confronted with any of the problems stated. Our sincere thanks go to the AMERICAN BUILDER reader experts who devoted not a little time and trouble to sending in this information.—THE EDITOR.



The Fine Work of Two Old Subscribers to American Builder, the Centerville Country Club, Centerville, Ia., Built by Banta & Wolary, Centerville, Ia. A well-handled, pure Colonial structure.

A Wood Dye That PENETRATES



NOTE: The enlargement shows how deeply Johnson's Wood Dye penetrates. This eliminates the possibility of the natural color being disclosed if the wood becomes scratched or marred.

JOHNSON'S WOOD DYE

Johnson's Wood Dye is entirely different from the many wood stains and tints on the market. With it inexpensive soft wood such as pine, cypress, fir, etc., may be finished so they are as beautiful as hardwood. It brings out the beauty of the grain without raising it in the slightest.

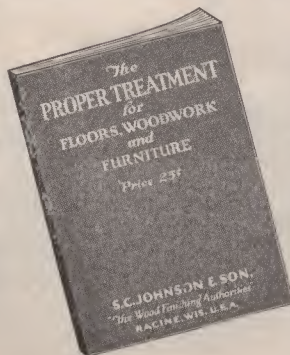
Johnson's Wood Dye is a **dye** in every sense of the word. It contains no finish whatsoever and, like most first class products, it answers one purpose only—it dyes the wood—the finish

must be applied over it. We recommend Johnson's Varnishes or Johnson's Polishing Wax.

Johnson's Wood Dye goes on easily and quickly without lap or streak. It dries in four hours and will not rub off or smudge. You will find Johnson's Wood Dye a big help in working out color schemes in stained woods. Johnson's Wood Dye is made in 15 beautiful shades, all of which may be lightened, darkened or inter-mixed. Full directions on the label.

FREE—This Book on Wood Finishing

It's the best book ever published on Artistic Wood Finishing—the work of the famous experts—illustrated in color. This book is written for the practical man—it gives covering capacity, includes color charts, etc. We will gladly send it free and postpaid. Use coupon at right.



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My name.....

My Address.....

City & State.....

A \$5,000 Ideal Wall Brick Home

By WM. CARVER

LESS than five thousand dollars is all that this attractive Ideal wall brick bungalow, just completed, cost Mr. George S. Buchanan, its owner, to build. This bungalow is definite proof that the Ideal wall makes it possible for any man to have a permanent home of brick at about the same cost as a home built of a less permanent type of construction.

Much general information has been made available to builders and contractors on this type of wall during the past three years, and its use is spreading in a way little short of amazing. Already the Ideal wall is recognized in the model building code issued by the U. S. Department of Commerce and it has been tested in various ways by the U. S. Bureau of Standards with highly satisfactory results. The building codes of many cities now recognize and allow this construction. Moreover, it has stood the acid test of actual use, and has really proved, in this and countless other instances, that it saves money and fulfills the requirements of high grade masonry for homes and other small buildings.

Before actually using the Ideal wall, many builders have felt that they would like to know of some specific job on which this construction has been used; with the name of the contractor and owner and location of the job. The present example should prove convincing.

Mr. Buchanan (whose address is Box 39, Marlin, Texas) decided to build himself a home and finally made up his mind to take advantage of the excellent qualities of brick construction. While considering the subject of brick, he also looked over the literature on Ideal wall construction and decided that his house must be built with Ideal walls. He was not entirely willing, however, to use the all-rolok type, in which all the brick are laid on edge. While considering that the wall possessed a distinctive and artistic appearance, he

personally preferred the appearance of the ordinary brick wall, so he decided to use the Ideal rolok-bak wall, in which the brick on the outer tier are laid on their flat bed, the backing up brick only being on edge, producing a hollow brick wall, but a wall which from outside looks exactly like ordinary brickwork.

Mr. Buchanan's mason contractor, when figuring the comparative unit cost of this wall as against brick veneer on hollow tile, hit upon an interesting discovery. It was obvious that the outside veneer of brickwork would cost the same, whatever material was used for backing. He found that, with the 8-inch Ideal rolok-bak wall, he required only 4 brick per square foot for backing. If he had used 4 by 5 by 12 foot back-up hollow tile, two tile per square foot would be necessary. Disregarding the labor cost, the comparative cost for material per square foot was therefore as follows: Two 4 by 5 by 12 Hollow Tile @ \$180.00 per M =

36c per sq. ft.

Four common brick @ \$12.50 per M = 5c per sq. ft.

Saving in material using Ideal wall 31c per sq. ft.

This showed a clear saving of thirty-one cents per square foot for material in favor of the Ideal rolok-bak type brick construction over brick backed with hollow tile, in 8-inch exterior walls. The three brick-

The Floor Plan of This House Is Very Conveniently Arranged. Observe the breakfast room between the kitchen and dining room—a popular home feature just now.



In This \$5,000 Ideal Wall Brick Home the Brick on the Outer Tier Are Laid on Their Flat Bed, and the Backing Up Brick on Edge, Producing a Hollow Brick Wall of Ample Bearing Capacity.

A Nice Roomy Front Porch Which Can Be Easily Screened.

10¢



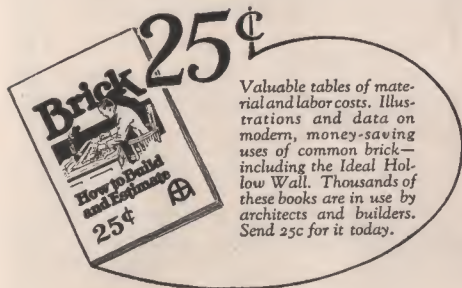
THE SAQUOIT
One of the 60 in
"Your Next Home."

You Can Increase Your Home Building Business Four Times—



THE HIAWATHA
Another of the 60. Has been called the finest house of its class ever designed.

The Book of Modern Methods



More than 100,000 of these plan books, "*Your Next Home*," are already in the hands of prospective builders. Hundreds of copies are going out daily.

Every home builder can cash in on this great interest in better *brick* homes. Get an assortment of the working drawings and specifications of these splendid, economical, brick houses. Sit down with your prospects and show them the attractive exteriors, the excellent arrangement of the rooms, the many unusual conveniences and distinctive features.

Be Ready to Show These Plans to Your Prospects

You can get these plans—original quarter-scale blueprints, as complete as can be made—at very low cost. Order at once the drawings for at least ten or twenty of these houses. Be ready to show them to the would-be home builder. See how easy it is to sell these homes.

Every one of the 60 selected brick homes shown in this book was designed by a competent architect, has *actually been built and lived in*.

If you haven't a copy of "*Your Next Home*" send 10c for it today. Make a selection of plans, order them, and watch the few dollars you invest grow into hundreds of dollars of increased business.

Send 35c and get both books, with price list of working drawings

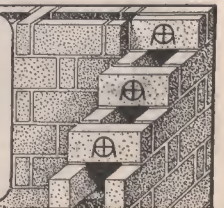
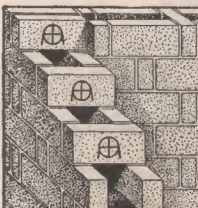
The Common Brick Industry of America

2131 CLEVELAND DISCOUNT BUILDING

Cleveland, Ohio

The Ideal Brick Hollow Wall

Made of standard brick—cuts the cost one-third





The Inside and Outside Walls, Up to Joists, of \$5,000 Ideal Wall Brick Home. The dimensions are 30 feet by 50 feet over all. The walls are 8 inches thick.

layers who worked on the job each actually laid an average of 1200 brick per 8 hour day, which disposes of any argument as to bricklayer production.

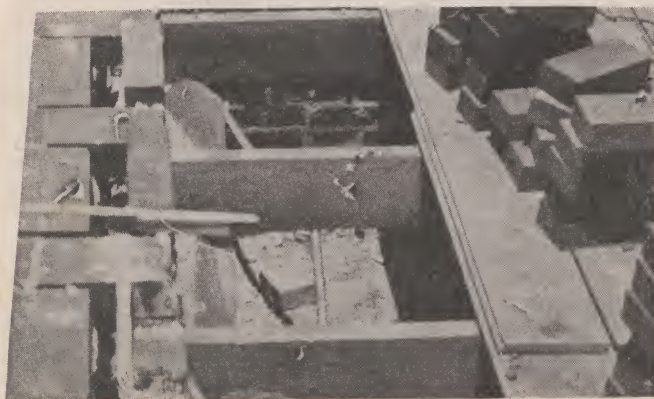
The approximate cost of the building was as follows:

| | |
|--|-----------|
| Brick | \$ 394.00 |
| 48 yards gravel, 32 yards sand..... | 99.20 |
| Cement, lime, lumber, roofing, ceiling, reinforcing, hardware, doors, windows, paint, etc..... | 1,775.00 |
| Angles (iron) | 35.30 |
| Millwork (facings, base, screens, frames, cabinets, French doors, etc.)..... | 503.00 |
| Carpenter work | 300.00 |
| Bricklaying, plastering, cement work..... | 950.00 |
| Painting, decorating | 150.00 |
| Plumbing, fixtures, fittings, etc., complete..... | 550.00 |
| Wiring and fixtures..... | 125.00 |
| Floor sanding and surfacing..... | 46.32 |

\$4,927.82

The illustrations show rough sketch plans of the house and a photograph of the finished building. The building measures 30 feet by 50 feet. Its height is as follows:

| | |
|--|--------|
| From the top of the footings to the bottom of the floor joists | 1' 6" |
| From the bottom of the floor joist to roof plate.... | 10' 0" |



Showing How the Wall of the \$5,000 Ideal Wall Brick Home Was Laid, the Outer Tier on the Flat Bed, the Backing Up Bricks on Edge, Dead Air Space Between.

The latter wall was built of Ideal construction; below the floor the wall was solid. All the inside walls were 4-inch brick walls. All walls were plastered directly on the brick.

Mr. Buchanan states that he cannot begin to give the "Ideal Wall" its due praise. He is fully satisfied and confident in it.

Aside from the reasonable cost of the brick construction in this residence, there is also the upkeep saving. Naturally the brick walls will enable the owner to save considerably, over a period of years, in painting expense, and, in fact, the exterior appearance will improve as the bricks take on a weathered effect with the passage of years.



Demand House Insulations

(Continued from page 107.)

the amount of heating equipment at least 10 per cent in itself covers a large part of the insulating cost. And the balance, it can be pointed out, is soon made up in fuel savings.

Contractors who build houses to sell are finding that the insulated house commands a premium far in excess of the insulating cost. And this demand for insulated houses among home-buyers is constantly growing. It is an indication that the day is not far distant when the uninsulated house will be hard to sell.

There is one other phase of house insulation that should be of interest to the building contractor. Many of those who built their homes a few years ago, when insulation was not so well known, are thoroughly "sold" on the proposition today. While side-wall insulation is, of course, no longer possible in these houses, it will be found well worth while to insulate the top floor ceiling or the roof. This will prevent much of the heat loss in winter and will keep out the excessive heat of the sun in summer.

Here is ideal work for the contractor in the dull seasons. The market is a large and profitable one for the builder who is willing to devote a little time and energy to its development. Being indoor work, it is ideal for winter. If some of the lighter, flexible insulating materials are used, it is easy, pleasant work for one man working alone.

The contractor who is anxious to secure his share of the house insulation business in his community will find the insulation manufacturers and the local retail lumber dealers ready to assist him with literature, samples and advertising helps of various kinds.



These Homes Heat with Oil, Not Coal

Thousands of homes the country over are breaking the shackles of the shovel; they are proving daily that for home heating, coal is obsolete. Kleen-Heet with its clean, instant, even heat is rapidly supplanting coal with its dirt, shoveling and inconvenience.

Kleen-Heet

NO LABOR • NO COAL • NO ASHES

AUTOMATIC OIL BURNING SYSTEMS

are being installed by live contractors and builders in a great many localities. They represent a real saving in home construction costs, enabling the builder to utilize all of the basement and to save an upper structure. A billiard room, den, playroom, etc., can be built in place of coal bins,

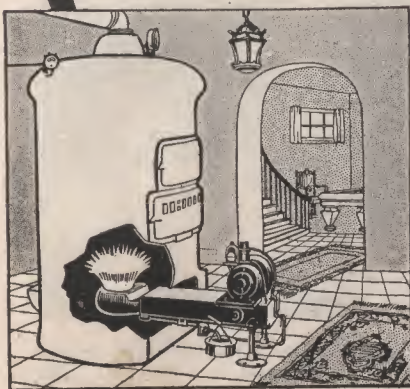
etc. Kleen-Heet Automatic Oil Burning Systems burn low-priced oil, always obtainable. Controlled automatically by a thermostat from any upstairs room. Operate with any type of heating plant. Can be installed in a few hours. Furnished with either gas pilot or electric ignition.

Listed as Standard by Underwriters

Kleen-Heet is a success because it is simple and sturdy in construction—the product of a corps of expert oil heating engineers. Kleen-Heet is listed as Standard by the Under-

writers' Laboratories. It is built and guaranteed by a company of strong financial responsibility and permanence. Kleen-Heet saves home owners' money, time, labor and space. Dirt,

work and uncertain heat are banished forever. Whole rows of houses are being built with Kleen-Heet installations. It is the modern method of home heating.



(Licensed under Doble Laboratories and Good Inventions Co. Patents)

Ask for These

The coupon here will bring all of the inside facts. Get them now. We have distributors and display rooms in all the principal cities. Write to us today. Address

Kleen-Heet
Division of

WINSLOW BOILER & ENG. CO.
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CHICAGO

This Brings The Facts Get It In The Mail Today

Winslow Boiler & Eng. Co.
Continental & Commercial Bank Bldg., Chicago

Gentlemen:— Please send me full information about Kleen-Heet.

Name.....

Address.....

My Business is.....

NEWS of the FIELD



September Construction Dropped Only Three Per Cent

THE decline in construction volume which began in June continued through September, according to F. W. Dodge Corporation. However, the September drop from August was only 3 per cent. Total September building contracts in the 36 eastern states (including about $\frac{7}{8}$ of the total construction volume of the country, as reported by this corporation), amounted to \$288,931,700. In the 27 states for which records were kept last year the drop from September, 1922, was 7 per cent. In these 27 states construction during the first nine months of this year has been just equal to the amount for the corresponding period of last year although on June 1 this year had a lead of 15 per cent over last year.

This year's construction volume to date in the 36 eastern states has amounted to \$3,012,610,500.

Last month's record for the 36 states included the following important items: \$111,906,000, or 39 per cent, for residential buildings; \$55,010,800, or 19 per cent, for public works and utilities; \$44,141,700, or 15 per cent, for business buildings; \$38,059,300, or 13 per cent, for industrial buildings, and \$16,399,000, or 5 per cent, for educational buildings.

Contemplated new work reported in the 36 states last month amounted to \$387,922,300, a decline of 25 per cent from the amount reported in August.

Material and Labor Situation

Building material prices were well stabilized during September, reports S. W. Straus & Co. Though there were some minor fluctuations, the general level was without significant change, in fact with the exception of a few grades of brick, building tile and southern pine lumber, prices of the previous month generally prevailed.

The attitude of labor as it was expressed at the convention of the Building Trades Department of the American Federation of Labor and in reports and statements made at that time by leaders of organized labor, indicated that in some trades still higher scales can be expected with a continuation of present activities. All building labor is fully employed at the present time, according to the reports of these union officials.

The number of apprentices is increasing rapidly, and the attitude of the majority of organizations was indicated as being favorable to the removal of all restrictions. The advent of these apprentices is expected to be a factor in stabilizing wages within the next two or three years, so labor leaders asserted.



Building Managers Invited to Consult on New Building Being Built by S. W. Straus & Co.

BUILDING construction entered a new stage of development after structural plans were completed for the \$15,000,000 thirty-two story Straus building now being erected by S. W. Straus & Co. at the corner of Michigan Avenue and Jackson Boulevard, Chicago, of which Graham, Anderson, Probst & White are architects. Notwithstanding the fact that S. W. Straus & Co. in making plans for its future home had the benefit of its own 41 years' experience in the financing of building construction, the Straus organization determined to lay before the National Association of Building Owners and Managers the complete plans so as to benefit from the experience of men engaged in the highly technical profession of managing office building properties. While it was voted that the plans were 100% perfect, the conference helped cut construction cost approximately \$250,000, while



When the Plans for the New Thirty-Two Story Straus Building, Chicago, Were Completed, These Managers of Important Buildings Were Called in Conference for Their Expert Opinion. Their advice helped increase the rentable area, added new service features for tenants and cut the construction cost approximately \$250,000.



The Odds Are Against You

6
to
1

if you are attempting to surface your floors by hand at a profit! You have tried it—you know how long it takes, how hard it is to get good workmen. You know that hand scraping is unsatisfactory—and you also know how *darned expensive it is!*

Think This Over—Then Act!

The "American Universal Way" costs you *one* dollar where hand scraping costs you *six*. The "American Universal" replaces six men on your payroll—and it does much better work. Investigate this today. Clip and mail coupon. Find out about *five day trial*.

Make \$30 to \$40 a Day

Surfacing floors as a business. The floor surfacing contractor, using an "American Universal", earns the wages of six expert hand scrapers. High quality of work creates big demand. Every floor, new or old, a prospect. Here's a chance for you to make big money on a very small investment. Designate on coupon whether you are a contractor or are interested in going into floor surfacing business (x).

Send coupon
today!

() I am a contractor and builder.
Send at once (without obligation to me)
full particulars and free catalogu on your
"American Universal" floor surfacing
machine.

() I want to become a floor surfacing contractor.

Send at once full particulars (without obligation to me) and tell me more about the wonderful opportunity to make big money in the floor surfacing business. Send free catalogue.

Name _____

Street Address _____

City _____

State _____

SEND BACK THE COUPON

6 to 1





New Gymnasium at Carnegie Institute of Technology, Pittsburgh, Now Under Construction and Expected to Be Ready for Occupancy This Month. The S. M. Siesel Co., Pittsburgh and Milwaukee, contractors. Henry Hornbostel, architect.

added service features were provided for the future tenants. The rentable area was also increased through the minor changes suggested. The Thompson-Starrett Company are the contractors for the Straus building.



New Gymnasium for Carnegie Institute of Technology

THE new \$400,000 gymnasium at Carnegie Institute of Technology, Pittsburgh, now under construction, will be ready for use by October of the present year. Concerted efforts to complete the building by that time are being made by the S. M. Siesel Company, of Pittsburgh and Milwaukee; a contracting firm that is headed by S. M. Siesel, a Carnegie Tech. graduate of 1908.

The plans, which were designed by Henry Hornbostel, architect, call for one of the finest gymnasiums in the country. The building will consist of four separate units—the women's gym, the men's gym, an administration building, and a swimming pool. Both gymnasiums and the swimming pool, it is said, will be the largest in Pittsburgh. Each gym and the swimming pool will connect, by corridors, with the administration building, which will be located in the center of the group, and which will tower above its connecting units to the extent of one story.

The building will be constructed of light colored brick, stone, terra cotta, and copper. The roofs are all flat and built of 4 by 4 tongued and grooved mill flooring resting directly on the steel piers and girders and decorated with cast iron finials.



Personal Brevities

APPPOINTMENT of Albert S. Boisfontaine, who has been assistant to the manager of the Southern Pine Association since last June, as assistant secretary, was announced Saturday by H. C. Berckes, secretary-manager of the association. Mr. Boisfontaine has been with the Southern Pine Association, serving in a number of capacities, since 1917.

COURTENAY S. WELTON, architect, has opened an office at No. 211 Richmond Trust Co., Richmond, Va. Manufacturers are requested to send catalogs and samples.

MERRIT ASHMUN POTTER, Secretary of E. C. Atkins & Company, Indianapolis, Ind., for many years, and the last survivor of the original incorporators of that company, died on September 30, at Indianapolis, Ind. Besides his business interests he was actively interested in philanthropic and civic endeavors in Indianapolis and the city joins with his widow and son in mourning his loss.

CAMILLE E. GRAPIN, a distinguished architect of France, has been appointed Professor of Architectural Design at Carnegie Institute of Technology for the coming year, according to an announcement from President Thomas S. Baker.

WILLIAM C. FRYE, for seven years President of the Chain Belt Company, Milwaukee, Wis., has retired from active participation in its affairs, and has been succeeded by C. R. Messinger, Vice-President and General Manager since 1917.

JOHAN P. O'CONNOR has been appointed Manager of E. C. Atkins & Company's branch house at Seattle, Wash. He has been connected with them at Seattle for many years and is well and favorably known among the saw users and buyers in the state of Washington.

THE Portland Cement Association announces the appointment of J. M. Marshall as District Engineer of the Association office at Atlanta, Georgia. Mr. Marshall succeeds Walter B. Elcock, who has recently been promoted to Assistant General Manager in charge of southeastern offices of the Association. The Atlanta office has charge of Association work in Georgia, North Carolina and South Carolina.



Link-Belt Acquires Meese & Gottfried Co., for Western Outlet

THE Link-Belt Company, Chicago, announces the purchase of the Meese & Gottfried Co., of San Francisco, Los Angeles, Seattle and Portland. The new organization will be known as Link-Belt Meese & Gottfried Co., with headquarters at San Francisco.



Anti-Hydro Waterproofing Co. in New Factory

THE Anti-Hydro Waterproofing Company has moved into its large new factory, 265-269 Badger Avenue, Newark, N. J.



New Virginia Distributor for the T. L. Smith Company

THE Graham B. Bright Co., Richmond, Va., has been appointed Virginia representative for the T. L. Smith Company, Milwaukee, manufacturers of Smith concrete mixers, Smith pavers, and Smith excavators and loaders.



New Concrete Block Machine Co.

THE Concrete Block Machine Co. has recently been organized with offices and laboratories at 111 Hamilton Street, Newark, N. J. Mr. P. W. Wittemann is president and general manager. A machine for making semi-wet interlocking concrete block is manufactured by this company.



Takes Over General Electric Company's Duplex Lighting Works

THE Duplex Lighting Works of the General Electric Company has been taken over by Edward Miller & Company,

What Stands Between You and More Money

IS IT LACK OF EXPERT TRAINING?

EVERY MAN whose eyes are open realizes that there are bigger opportunities for building experts today than ever before.

Everywhere we see construction of all kinds going on and are told of more to be done—houses, office buildings, factories, stores, warehouses—all needing men with the training to plan the work and to direct those who do the manual labor. It is these men, trained to carry responsibilities, who make the most money in the building business. And everywhere we hear the call for them.



Ability to Read Plans, Estimate Costs, Superintend Work, Is What Puts a Man Ahead Today

As long as a man is willing to drive nails, plane boards, mix mortar, lay brick, chisel stone, string wires, wipe joints or do other manual work he will be limited to the prevailing scale of wages.

As long as a contractor is satisfied with taking on small jobs, he will see the large profits go to men who know how to handle the big jobs. That is why ambitious men are training—getting the knowledge which makes their services worth more. They know that brains always command more money than muscle or skill of hand.

For over twenty years, Chicago Technical College has been helping this kind of men to advance—to get

where they draw the high salaries or make the big profits that are paid to experts.

Hundreds of these ambitious men have stepped into the big pay class while fellow workmen remained at the bench.

Albert S. Ross of Oklahoma is one of the men who have made big money as a result of this training. Mr. Ross writes: "After taking the course my salary was increased \$225 a month. Am now in business for myself (contracting) and my prospect file shows \$220,000 worth of work."

R. T. Henderson of W. Virginia says: "Since I enrolled my income has been increased more than 300%."

Oscar Rosin of Minnesota also took

**Every hour you
put in learning
more about
your trade
or business
is going to
pay you back
in real money**

Chicago "Tech" Training, became a contractor and writes: "Work in our office has opened up good. Am drawing plans for a \$70,000 school building and have others in view. Some of our large work last year was an \$80,000 church, \$60,000 armory, \$30,000 store and a large number of residences."

Hundreds of other men could tell you experiences similar to these of success following the instruction they received under the Chicago "Tech" experts. The same training they were given is open to you.

Train by Mail

Chicago "Tech" is ready to give you the same training in Plan Reading, Estimating, Superintending. Our Builder's Course makes building experts—men who know every practical point about planning, figuring costs and directing all classes of construction.

No need to leave your present job to get this training. We will teach you by mail and you can use your spare time for study under the direction of our experts. No special education required.

FREE 2 Books and Blue Prints

Your request brings our two books, one on "How to Read Blue Prints," containing a lesson in Plan Reading and with it we send blue prints, drawings, etc. With this lesson you can test yourself. See how easily you can learn by our method before you decide about enrolling. The other explains the Chicago "Tech" Method of training by mail.

Just sign and mail the coupon and these books and blue prints will go to you by return mail.



Chicago Technical College

1136 Chicago Tech Bldg., Chicago, Ill.,

Please send me your Free Books and Blue Prints for men in the Building Trades. Send postpaid to my address below.

Name

Address

Post Office.....State.....

Occupation

and will henceforth be operated as the Duplex-a-lite department firm of Edward Miller & Co., Meriden, Conn. This old established firm assures its clients that with new manufacturing facilities it will be in much better position to serve the trade than ever.



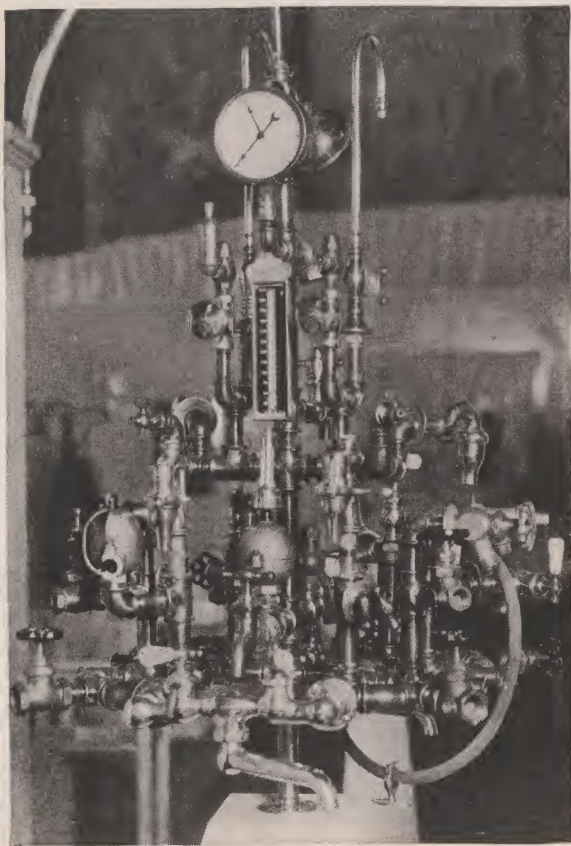
Westinghouse Lamp Company Purchase Brooklyn Plant

TITLE to the seven story concrete building at 35 Steuben Street, Brooklyn, has recently been acquired by the Westinghouse Lamp Company. This purchase of an additional 100,000 square feet of floor space brings the total owned space of the Lamp Company up to 1,500,000 square feet, representing an annual production capacity of over 100,000,000 Westinghouse Mazda lamps.



Copper and Brass Association Has Novel Exhibit at Master Plumbers' Annual Meeting

THE exhibit of the Copper and Brass Research Association at Garden Pier, Atlantic City, in connection with the annual meeting of the National Association of Master Plumbers, contained several features of interest. One was a novel literature distributor consisting of a motor driven wheel



The Brass Plumbing "Family Tree" Shown at the Exhibit of the Copper and Brass Research Association, Garden Pier, Atlantic City.

rotating at a speed which permitted the passing spectator to remove literature from the wheel pockets. Wheel and motor were housed in a highly polished brass container. A series of paintings showing the evolution of plumbing pipe; a piece of copper pipe, 5,400 years old, from Egypt; the development of the water-seal trap; a highly polished copper water boiler; a drinking fountain giving a steady flow of crystal-clear water from shining brass pipe; and the brass plumbing fixture

"family-tree," containing more than a half-hundred different fixtures, helped form an exhibit which was one of the outstanding and business-stimulating features of the Master Plumbers' annual meeting.



"Wood as Building Material" New Course at U. S. Forest Products Laboratory, Madison, Wis.

THE U. S. Forest Products Laboratory, Madison, Wis., which since 1919 has been giving demonstration courses in Kiln Drying of Lumber, Boxing and Crating, Glueing of Wood, and Wood Properties, announces a new course covering wood as a building material. This course is designed for architects, construction engineers, contractors and others interested in the use of wood in building construction.

The course for architects will be given at Madison Dec. 10 to 15, inclusive. A co-operative fee of \$100 per man will be charged to cover the cost of instruction. Further information in regard to the course may be obtained from the Director, Forest Products Laboratory, Madison, Wis.



Nineteen Twenty Four Own Your Home Expositions

THE Fourth Annual (Chicago) "Own Your Home" Exposition will be held in the Coliseum, March 22 to 29, under the direction of The Chicago Real Estate Board, and the Sixth Annual New York "Own Your Home" Exposition will be held in the 69th Regiment Armory, April 19 to 26, under the direction of the Real Estate Boards of the Metropolitan District.



Successful Exhibits by Southern Pine Association at State Fair

WIDESPREAD interest has been attracted by the exhibit of the Southern Pine Association, displayed at three important state fairs. It is estimated that approximately 800,000 people viewed the exhibit.

Beginning with the Missouri State Fair, at Sedalia, Mo., it went to the Ohio State Fair, Columbus. It has just been returned to New Orleans, after a run at the Illinois State Fair, Springfield, and the Louisiana State Fair, Shreveport.

The exhibit included miniatures of model cottages, bungalows and larger dwellings, several of which are especially adapted for farm homes; miniatures of four model rooms—with plans and specifications; numerous hand-colored photographs of homes actually built from the association's plan service, and adequate supplies of plan books and home building literature, including "Modern Homes," "Southern Pine Garages," "How to Plan, Finance and Build Your Home," and a new plan book just being published by the association, showing ten different designs with detailed plans of barns.



Production of Lumber, Lath and Shingles: 1922 and 1921

THE Department of Commerce announces that the total production of lumber during 1922 in the United States was 31,426,922,000 feet. This is an increase of 16.5 per cent when compared with the cut reported for 1921, but a decrease of 9 per cent compared with the cut for 1919.

The production of lath was reported as 2,905,595,000 in 1922 and 1,970,696,000 in 1921, and the production of shingles 8,068,585,000 in 1922 and 6,843,187,000 in 1921.



RICHARDSON
Product

From the makers of Flex-a-tile Housetops, Viskalt Membrane Roofs, Viskote, Wall Board, and similar products

Super-Giants

The 50% greater thickness of each shingle builds an invincible armor against the weather



Standard Shingles

Shingles only half as thick break down sooner under weather attacks

50% more weather armor than standard shingles!

You can now be sure of absolute roof protection against rain, wind, snow or scorching heat. A new slate-surfaced shingle has been produced that gives 50% more weather armor than the standard shingle. Think how strongly this will appeal to your customers!

For example, the 50% greater thickness of this unique product, the Richardson Super-Giant Shingle, makes it last much longer and cast a deeper shadow line on the roof. Its greater size (10" x 14") saves 35% in cost of laying. And its 100% greater stiffness keeps it rigid in all kinds of weather.

Moreover, its inner materials, felt and asphalt, give conclusive evidence of its endurance. Richardson felt, as you know, has for the last fifty years been recognized as the best. And the asphalt which goes into it is

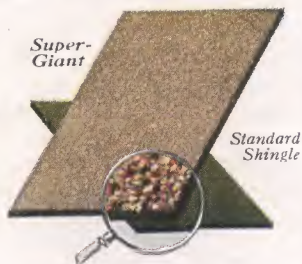
of the highest grade raw materials refined exclusively by the Richardson process.

Beauty hitherto unknown

On this super-shingle alone is used a color in slate hitherto unknown—a rich *weathered brown* found only in the Richardson quarries of Georgia.

It is as beautiful as the frosty tan of autumn fields, and with use, it mellows and deepens to a shade like the thatch of an English cottage.

Architects are enthusiastic over its rare color effects, especially when it is blended with other Richardson shingles of jade green, tile red, or black pearl.



The Super-Giant Shingle—50% thicker, 100% more rigid, and 35% more economical in cost of laying

These facts will sell it

A super-shingle, indeed, when you weigh its points one by one! First—unusual dimensions which give

added life to the roof at $\frac{1}{3}$ less in cost of laying. Second—exceptionally high test standards in its materials. And finally—absolutely new and exclusive color effects.

These definite talking points will help to sell your customers—especially the exclusive color effects. And, of course, Richardson Super-Giants are equally good for new or "over the old roof" jobs.

Send for our beautiful new booklet, *Roofs of Distinction*, together with samples of Richardson Super-Giant Shingles in *weathered brown* and other colors. For every roofing use there is a Richardson product—from Lok-Top Asphalt Shingles to Rubbertex Roll Roofing applied with the famous Pyramid Kaps. Just use the coupon below.

The RICHARDSON COMPANY

Lockland (Cincinnati) Ohio

Melrose Park (Chicago) Ill. New Orleans, La.

Clip and mail this coupon

The Richardson Company
Lockland, Ohio

Gentlemen:

Please send me samples of Richardson Super-Giant Shingles, your new booklet and further facts about Richardson Roofing.

Name.....

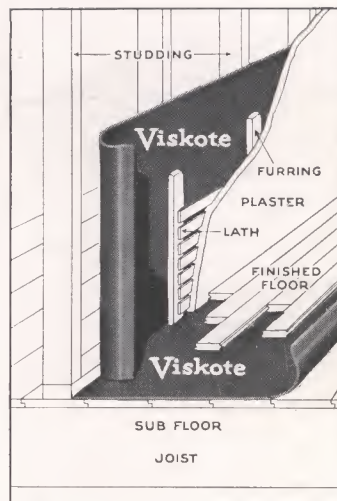
Address.....

RICHARDSON ROOFING

Viskote

SANITARY—SOUND-PROOF

Build sanitation and silence into your structures by insulating between walls and beneath floors with Viskote "A"



Protection that every building needs

Proper insulation for the home as well as for hospitals, schools and other public buildings has now become a necessity. Such insulation should, as you know, serve as an armor against noise and unsanitary conditions.

Precisely these requirements are met by Viskote "A", a loosely woven fabric coated on both sides with a heavy, adhesive waterproof film of Viskalt Compound. The material which forms the base of Viskote contains innumerable dead air cells which absorb and reflect sound waves. Its sanitary coating of Viskalt Compound repels mice, fleas, moths and other vermin, and prevents spillage from setting up unhealthful

conditions. Moreover, Viskote, because of its tough coating remains *permanent*.

This new product has now been specially prepared as Viskote "B", to meet a new use—as a cushion to be laid under linoleum and other floor covering. After being softened on both sides with Viskote Primer, it adheres firmly both to the floor and to the floor covering, thus forming a waterproof, sanitary cushion which insulates against heat, cold and dampness, and adds long life to the linoleum.

Write us today for complete information on how you can profitably use Viskote in your business.

You can always sell a **RICHARDSON** *Product* for every roofing use

Richardson Roofing will give permanent satisfaction on every roofing job you sell. For in every product, exceptional materials and workmanship are combined. Here are a few of the Richardson products—

Lok-Top Asphalt Shingles give at remarkably low cost a locked-down roof of good appearance and sturdy endurance. Surfaced in jade green, tile red, or black pearl slate.

Flex-a-tile Standard Individual Shingles are stiff, strong, and uniformly made for a variety of uses. Surfaced in jade green, tile red, or black pearl slate.

Flex-a-tile Style 4 Slabs combine 4 shingles in one. Being self-spacing, they are easily and quickly laid. Surfaced in jade green, tile red, or black pearl slate.

Rubbertext Roll Roofing is a flexible, durable, all-purpose product especially adapted to factories, warehouses, barns and garages. Use Zinc Pyramid Kaps when applying.

Flex-a-tile Slate Surfaced Roll Roofing, enameled with jade green slate combines the quality of Flex-a-tile Housetops with the economy of roll roofing. You can apply it best with Pyramid Kaps.

Flex-a-tile Shingle Roll Roofing with a permanent shingle design embossed right on the roll gives at very low cost the effect of individual shingles.

Viskalt Paints, Cement, Coatings—an extensive variety of protective products which it will pay you to follow up.

Viskalt Membrane Roofs (built-up) give lasting weather protection for stores, office buildings, factories, warehouses or any flat roof.

* * *

As you see, these principal Richardson products fit every type of customer, every kind of roofing problem. And remember—one Richardson Roofing job sells another. For complete details and for our latest price list, write us today.

Melrose Park (Chicago) Illinois

The **RICHARDSON COMPANY**
Lockland (Cincinnati) Ohio

New Orleans, Louisiana

RICHARDSON ROOFING

ARCHITECTS' GUIDE

For Painting, Varnishing, Staining and Enameling

IMPORTANT: Each of the products specified below bears our name and trade mark



| SURFACE | TO PAINT Use product named below | TO ENAMEL Use product named below | TO STAIN Use product named below | TO VARNISH Use product named below |
|--|--|---|---|---|
| BRICK WALLS (ext.) | S-W Concrete Wall Finish | Old Dutch Enamel | | |
| CONCRETE WALLS | S-W Concrete Wall Finish | Old Dutch Enamel, Gloss | | |
| CEMENT FLOORS | S-W Concrete Floor Paint | S-W Concrete Floor Paint | | |
| EXTERIOR WOOD SURFACES | SWP (Sherwin-Williams Prepared Paint) | Old Dutch Enamel | S-W Preservative Shingle Stain S-W Acid or Oil Stain | Rexpar Varnish |
| EXTERIOR METAL SURFACES | Kromik Structural Steel Metalastic (for finishing coats) | Old Dutch Enamel | | |
| FACTORY WALLS (Interior) | S-W Eg-Shel Mill White S-W Fume Resisting White | Old Dutch Enamel or Enameloid | | |
| FLOORS (Interior Wood) | S-W Inside Floor Paint (the enamel-like finish) | S-W Inside Floor Paint (the enamel-like finish) | Oil Stain or Floorlac Varnish Stain | Mar-Not Floor Varnish |
| GALVANIZED IRON SURFACES | S-W Galvanized Iron Primer (Finish with any Paint) | S-W Galvanized Iron Primer and Old Dutch Enamel | | |
| INTERIOR WALLS AND CEILINGS | Flat-Tone Wall Finish S-W Semi-Gloss Wall Finish | Old Dutch Enamel or Enameloid | | |
| INTERIOR WOOD TRIM | SWP (Sherwin-Williams Prepared Paint) | Old Dutch Enamel or Enameloid | S-W Acid Stain S-W Handcraft Stain S-W Oil Stain | Scar-Not Varnish Velvet Finish Varnish (for imitation rubbed effect) |
| PORCH FLOORS AND DECKS | S-W Porch and Deck Paint | | | |
| RADIATORS AND PIPES | Flat-Tone Wall Finish or S-W Gold Paint S-W Aluminum Paint | For White—S-W Snow White Enamel For colors—Enameloid | | |
| ROOFS—Metal | SWP or Metalastic (if Galvanized, prime with S-W Galvanized Iron Primer) | | | |
| ROOFS—Wood Shingle | SWP | | S-W Preservative Shingle Stain | |
| STACKS AND HOT SURFACES | Salamander Smoke-Stack Black | | | |
| STRUCTURAL STEEL | Kromik Structural Steel Metalastic (for finishing coats) | | | |
| TO DAMP-PROOF FOUNDATIONS | S-W Antydamp | | | |
| TO DAMP-PROOF INTERIOR WALLS ABOVE GRADE | S-W Plaster Bond | | | |
| WOOD PRESERVATIVE | | | S-W Carbolic-ol | |

Convenient

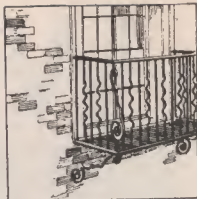
Write to the
Department of Architectural Service
601 Canal Road, Cleveland

The "Architects' Guide" is carefully prepared by The Sherwin-Williams Co. to provide a definite recommendation on the right finish for each surface.

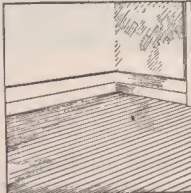
For details of specifications see: The Sherwin-Williams book of painting and varnishing specifications or Sweet's architectural catalogue.

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SHERWIN-WILLIAMS
PAINTS AND VARNISHES



To protect ornamental iron work



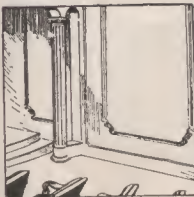
For finishing floors



For stacks and other hot surfaces



For any desired effect on interior woodwork



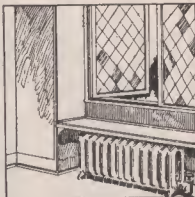
For distinctive wall decoration



For roofs



For concrete walls



To finish radiators



For stucco

WHAT'S NEW?



EDITOR'S NOTE: *The AMERICAN BUILDER does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address AMERICAN BUILDER Information Exchange, 1827 Prairie Ave., Chicago.*

Steel Bar Joists for Firesafe Floors in Any Building

THE necessity for fireproof floors in any structure of any size is no longer a question. The real question is the securing of such floors at relatively low cost.

Steel joists in various forms have been used for this purpose for many years. Illustrated is a steel bar joist containing all the advantages of the usual steel joist, with a number of important additional improvements. Each bar joist is built of five steel bars formed and welded to the shape of a steel truss and provided with steel bearing plates at each end. This design places the maximum amount of steel exactly where it will do the maximum of load carrying, thus securing strength, rigidity and permanency for the parts—the joists—that primarily support the floor materials. The center of gravity of the bar joist is below the line of bearing, consequently the joist assumes only one position—the correct one—when in place. This makes bracing unnecessary, and saves both labor and material.

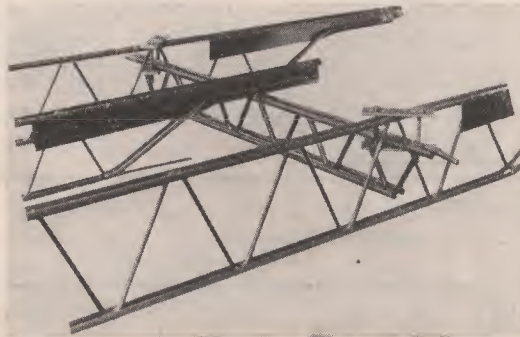
With this bar joist floors are constructed without the aid of heavy and expensive equipment. There is a tremendous saving in volume of materials to be transported, hoisted, and handled in and out of the structure. The job is kept clear and free, enabling every trade, once it starts, to work efficiently and steadily until the job is completed.

The reduction in dead weight of the floor slab obtained through the use of these steel bar joists reduces the required weight of beams, columns and footings, which in turn means unusual savings. The installation of electric wiring, conduits, plumbing and heating pipes is accomplished more easily, and future changes are possible after the structure is completed, without tearing

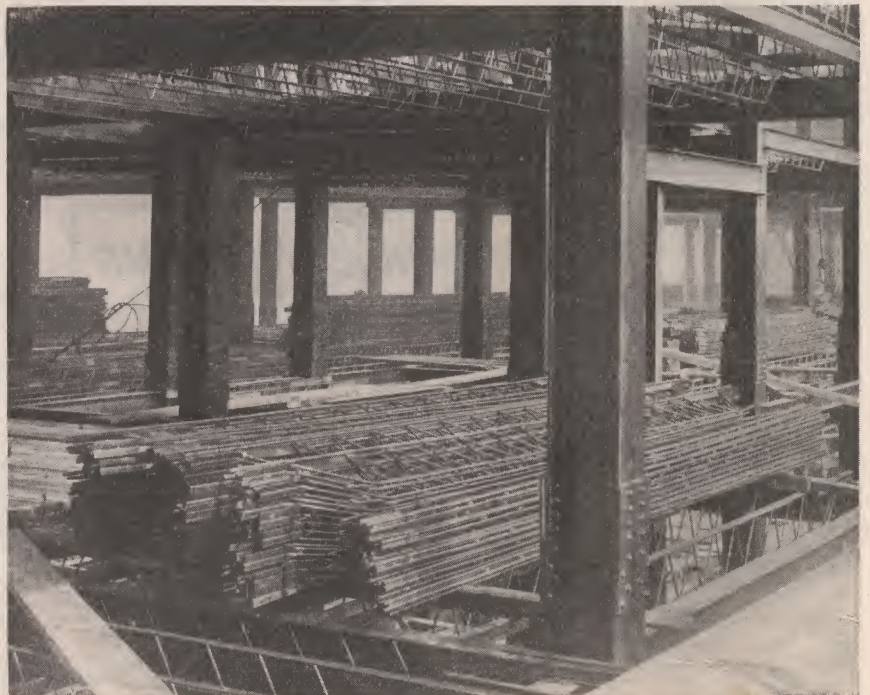
up the floors.

The builder using these steel bar joists has a simplified, standardized unit to work with, as familiar as ordinary wood joists. Eighteen standard joists cover the ordinary range of loads and spans. Two standardized header sections meet the framing requirements for small openings, large openings being framed in structural steel or concrete. No cutting of the bar joists is necessary except where they extend into face brick outer walls.

These steel joists are designed into buildings, distributed and warehoused by a nation-wide merchandising organization. Architects, builders and contractors are given the benefit of prompt local service, supplemented by whatever structural engineering information they may require on specifying or using these steel bar joists in any particular job.



These New Steel Bar Joists Are Built of Five Steel Bars Formed and Welded to the Shape of a Steel Truss, with Steel-Bearing Plates at Each End.



The Steel Joists Are Easily Handled and So Stowed Against Use That the Job Is Kept Clear and Free for Every Trade to Carry on Their Work Efficiently and Steadily.

Solves your farm roofing problem completely

FARMERS demand roofings that are leak-proof, storm-tight and fire-resisting—that are low in first cost as well as last cost—that are easy to lay, easy to repair and that will last for years.

That's why builders and roofers, in all parts of the world, are using GENASCO ROLL ROOFING. Not only for farm-buildings—but wherever there's a demand for a high-quality roofing that doesn't blister under heat, crack under cold or rot under dampness.

Genasco Roll Roofing—like all roofings of the Genasco Line—is made of tough, long-fibred asphalt felt heavily weather-proofed on both sides with the famous Trinidad Lake Asphalt Cement—a product of the Ages.

Genasco Roll Roofing comes in two styles—smooth surface and slate surface. Light and medium weights supplied in rolls of one or two squares—heavy weight in rolls of one square.

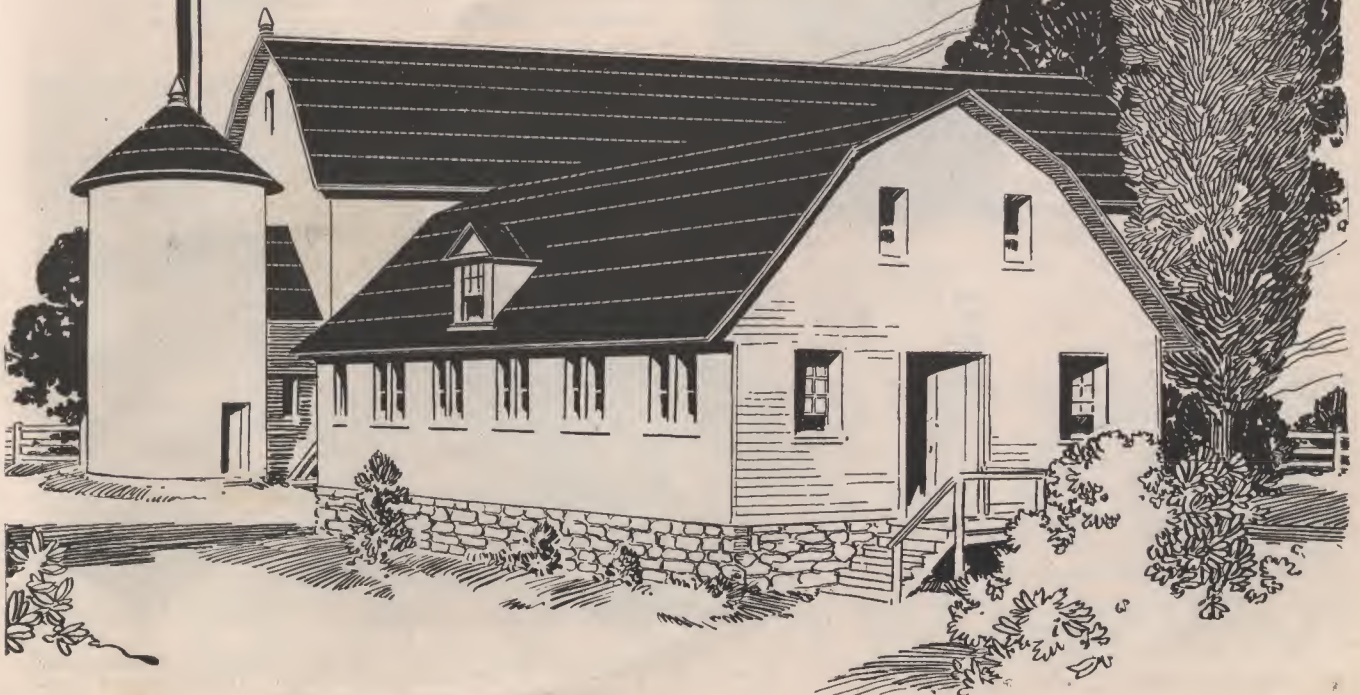
Packed in the case of each roll is a full supply of the celebrated Kant Leak Kleets—a patented device that insures a quick, easy and safe application of roll roofing.

Write at once for illustrated booklets and prices.

THE BARBER ASPHALT COMPANY

PHILADELPHIA

New York Chicago Pittsburgh St. Louis Kansas City



A Furnace Oil Burner Any One Can Buy and Operate Cheaply

THE burning of oil in any furnace, without blowers, motors, pressure devices, electricity, or any machinery, is now a fact. A manufacturer has perfected an oil burner over a period of five years, in which it has been successfully used in houses everywhere, vaporizing oil and mixing it with air. Laboratory tests show that it yields more heat per dollar of cost than a coal fire, but because local conditions everywhere affect the cost of coal, the manufacturer does not claim that a user's fuel cost will be less than if one had burned coal. He claims an advantage on the score of more satisfactory heat, maintained as required, and the greater cleanliness which comes from a basement free from sooty coal dust and ashes.

The oil-burning unit is small and compact and made of iron. It fits on the grate of any furnace, and burns cheap oil—distillate, furnace oil or kerosene. It will give all the heat required for buildings of from three to twenty rooms. It includes, besides the burner unit, all additional equipment necessary: control and automatic shutoff valve, tank valve, strainer, torch, and asbestos. The whole control of the burner is centered in the one valve, for after the burner is lighted it is only necessary to turn the control valve to get a high flame or a low flame for any temperature desired. If the thermostatic control is used, as shown in the illustration, all control is automatic. The thermostat is set upstairs for the room temperature desired, and the thermostat does the rest. Or, the controlling may be done by using chains similar to a furnace draft wall regulator.

There is no sound except the slight purr of the pull of air through the natural draft of the furnace, and this sound is only audible in the basement—not upstairs. The basement regains its self-respect; it can be neatly whitewashed again in the knowledge that it will stay that way.

Many builders and contractors specify it in the houses and other buildings they erect, knowing they are suggesting something which insures the comfort

of the occupants. The manufacturer allows the builder or contractor a liberal discount in such case.

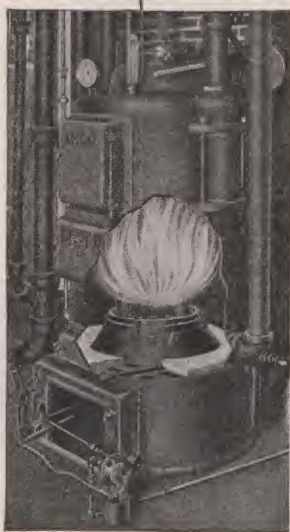
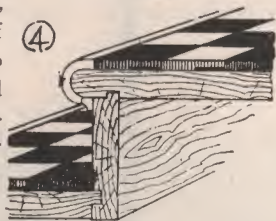
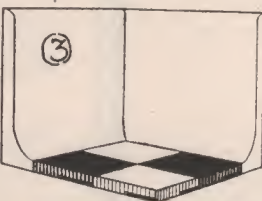
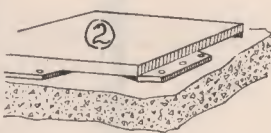


Handsome New Rubber Floor Tile

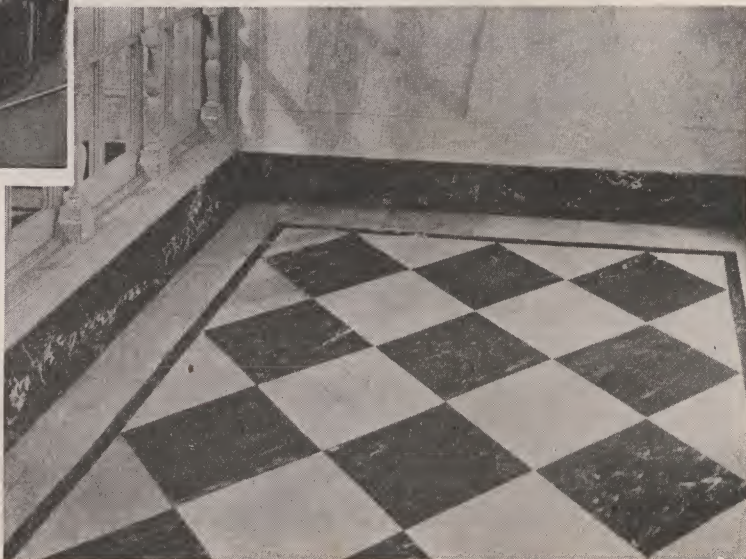
ILLUSTRATED is floor laid with rubber tile made by a new and exclusive process. Combined with the rubber are other wear-resisting materials which help make it durable, clean, noiseless, and of fine appearance. It duplicates the veinings of rare marble tiles, and simulates flat tiles in all accepted colors, and in white and black. Plain, mottled or grain effects are also to be had in extensive variety. The colors are permanent, permeating the entire thickness of the tile— $\frac{1}{4}$ of an inch. The surface is mildly resilient.

Since these tiles are without grain they will not splinter, and they do not crumble or "dust." The installation is very easy; each tile being equipped with interlapping flaps with countersunk holes. They can be both nailed and cemented to wood, cinder concrete or any nailable surface; are adaptable for use with all styles of fireproof and sanitary bases and concrete, marble and terrazzo borders. They make excellent stair treads. In the kitchen, bathroom, toilet, laboratory or any other place where grease, dye and antiseptic solutions soil floors, and where powerful cleansing agents or scrubbing brushes are used; this tile commends itself, as it is cleaned easily and without being damaged in any way.

Where the architect and builder is faced with the problem of specifying floors which will be lasting, reasonably inexpensive, and yet of the high character necessary to harmonize with the marble, painted stucco, art plaster or wood paneling now so much in vogue or artistic interiors, these tile come as a welcome suggestion.



The Oil-Burning Unit Is Iron and is small and compact. It fits onto the grate of any furnace and burns oil. The heat is governed by thermostatic control, as shown in the upper illustration.



1, Rubber Tile Laid on Wood Floor; 2, Laid on Cinder Concrete Base; 3, with Sanitary Mopboarding; 4, as Stair Treads. Lower illustration shows photograph of typical installation.



Fenestra-Enclosed Before Cold Weather

By using Fenestra WindoWalls you can speed up your work. They are so easily and quickly built into garages, machine shops, laundries and other buildings of similar character that your operations are greatly simplified. They come to you completely assembled—*ready to install*. The ventilators are already fitted and hung, the hardware is attached, a priming coat of paint is ready applied. *You can easily get your building enclosed before cold weather.*

Fenestra WindoWalls are stocked, in a wide variety of types and sizes, by near-by dealers who are supplied by 25 well-distributed warehouses. You can get them *quickly*;—*have them on the job when you need them, all ready for immediate use.*

There are many other important advantages to you in the use of Fenestra WindoWalls. Let us tell you about them and give you the name of a near-by dealer who can show these windows to you.

DETROIT STEEL PRODUCTS COMPANY, T-2260 E. Grand Boulevard, DETROIT, MICH.

Fenestra

The Original Steel WindoWall

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

New Louvred Ventilator Facilitates Cross Ventilation in Rooms

THE transom over a doorway fulfills an important purpose as a facilitator of cross ventilation, and yet it has drawbacks which offset its manifold advantages. In the case of a hotel room or hospital room, opening off a corridor, it is often difficult to so shade the opened transom as to prevent reflection of the hall light into the room; and furthermore, it is not intrusion-proof.

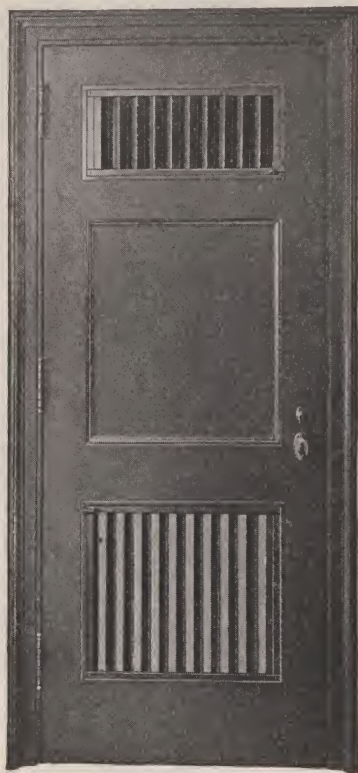
Illustrated is a louvred ventilator made of pressed steel for use in doors or transom space. While providing for ventilation it affords absolute privacy, as it excludes vision and the possibility of ingress. It prevents drafts as it baffles air currents.

It comes either with a priming coat or in baked enamel, plain or grained, to match the trim, and presents a very handsome appearance. Operation is effected by a simple turn of a handle conveniently located. It can be adjusted to any degree of opening, and stays put without rattling. It is fool-proof, and cannot get out of order, and being made of medium gauge pressed steel it is naturally fireproof.

It is used in the transom space or is installed

directly in the door, where the rooms are low studded and a transom is impractical. This fact commends itself also in the case of existing buildings where additional ventilation seems desirable, but where the installations of transoms would be a matter of much expense and inconvenience.

Hotel owners find these louvred ventilators improve the value of rooms from a renting point and give satisfaction to guests. They are used in hospitals, dormitories and clubs,



Showing a Double Installation of the Louvred Ventilator in a Door. Usually the upper ventilator suffices, doing away with transom.

locker rooms, apartment houses, municipal buildings, residences, telephone booths, churches, schools, etc. They are limited to a maximum height of 24 inches, but can be furnished in any length desired. Standard sizes are 12 inches high, and from 20 to 34 inches long.



A Small Portable Cleaner for Buildings Not Piped for Stationary Vacuum Cleaner Surface.

A Truck Cleaner for Floors in Large Buildings

THE popularity of small portable cleaners for residence work has in turn created a strong demand for portable cleaners of greater utility and more compre-

hensive cleaning capacity for use in buildings which for any reason may not be piped for stationary vacuum cleaner service, and as auxiliary equipment to the installed type. Office buildings, churches, schools, theaters, department, furniture, clothing, fur, dry goods and other stores, factories, fraternal and lodge rooms, hotels, libraries, hospitals, upholsterers, tailors, restaurants, garages, automobile sales rooms, etc., and other buildings, with or without elevator service, will find this new portable cleaner a decided convenience.

The varied air cleaning which may be accomplished with it is identical in scope with the service obtained from a stationary air-cleaning plant.



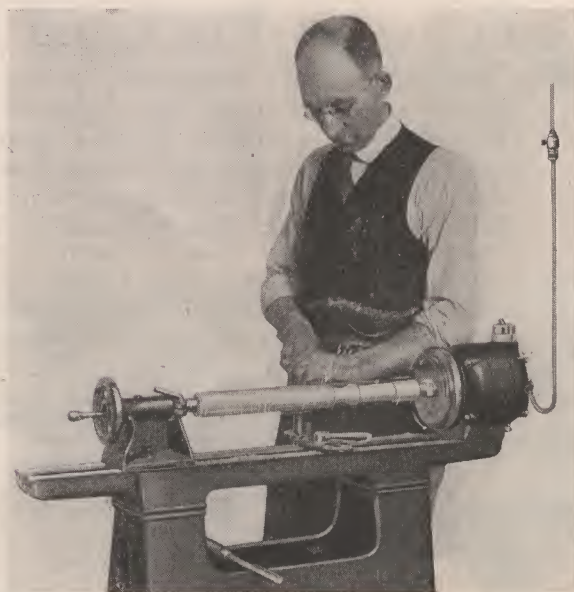
New Single Speed Bench Lathe Speeds Up and Cheapens Small Turning Operations

A NEW, single-speed, portable 6-inch bench lathe has been placed on the market by a manufacturer of portable bench machines. This machine is probably the smallest electrically driven woodworking lathe made and is designed to do the smaller turning operations which make up a great share of the work in many woodworking plants, and to do them speedier and more economically than they can be done on larger machines.

This little high-speed lathe is intended for work up to 6 in. in diameter. It clears 5 in. over the tool rest and 7 in. on the face plate, with full 24 in. between centers.

After extensive experimental work the manufacturers have set 3,400 r.p.m. as the ideal speed for this class of small work. This speed is considerably at variance with the speeds developed by multi-speed lathes, but its makers have much to uphold their contentions that 3,400 r.p.m. is scientifically and practically correct for work up to 6 in. in diameter.

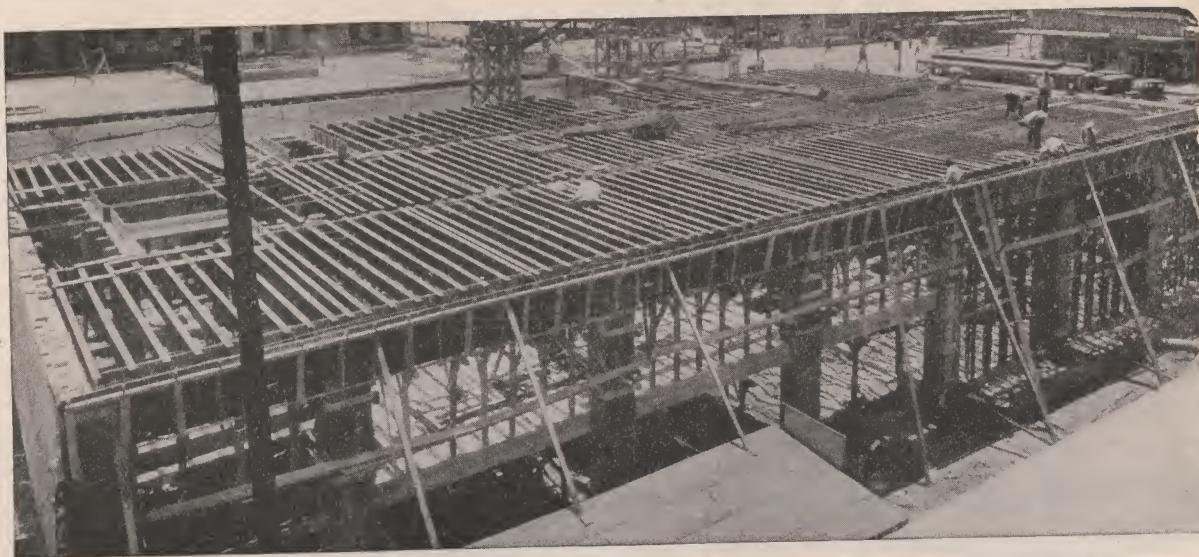
The machine weighs but 203 pounds and can be moved at will, close to the bench, to get proper light on the work, etc.



A New, Single-Speed Portable 6-Inch Bench Lathe Taking Work up to 6 Inches in Diameter; Motor-Driven; Good Money-Maker for All Small Turning Operations in Any Wood-working Shop.

At the same time it is heavy enough to stand rigidly without vibration. Its height over all is 46 in. and length over all is 40 in. The subbase is open so that it serves as a convenient holder for tools.

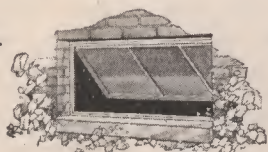
The $\frac{1}{2}$ h.p. General Electric motor is built into the head stock and is entirely enclosed—dust proof. It is direct connected to the lathe spindle—constant speed—ball bearings—



Hotel and Saenger Theatre Arcade, New Orleans, La. Emile Weil, Archt. for theatre, Weiss & Dreyfous Inc., and Toledano Wogan & Bernard, Assoc. Archts. for hotel. R. P. Farnsworth & Co., General Contractors. Truscon Steel Joists.

Simplicity--Light Weight--Fireproofness Assured to Light-Occupancy Buildings

A fireproof construction that is really simpler to use than wood, requiring no special equipment nor expensive plant, no centering or false work. Steel members that are completely shop-fabricated, cut to length and fitted. A strong, quickly-erected construction requiring only a small working force to install.



Truscon Copper Steel Basement Windows

Modern homes everywhere are using Truscon Basement windows. They give 50 to 80 per cent more daylight; they are weathertight, never stick or warp; always easy to open and close and fully equipped with automatic spring lock and heavy steel hinges. They cost as little as wood and are easier to install.

Truscon Copper Steel Standard Casements

Casements are the popular windows for the home. Truscon Standard Casements provide enduring beauty and 100% ventilation.



Fully equipped with steel hinges with bronze pins, malleable cam-acting locking handle of pleasing design and bronze friction stay.

Truscon Steel Joist Construction with Truscon Metal Lath

Combines all these advantages. Truscon Steel Joists weigh little more than wood and possess many times the strength. With Truscon Metal Lath in buildings of light occupancy they provide firesafe floor construction at about half the dead weight of other recognized types of fireproof floor.

This means tremendous economies in materials to buy, handle and erect. Such flooring is crackproof, vermin-proof and saves not only in first cost but in maintenance expense. Truscon Steel Joists with Truscon Metal Lath are being used for apartments, hotels, stores, offices, hospitals, schools, and residences, large or small. Well adapted to buildings already planned in wood.

Write for Truscon Steel Joist Data Book

TRUSCON STEEL COMPANY
YOUNGSTOWN, OHIO, U. S. A.

Warehouses and offices from Pacific to Atlantic. For addresses see 'phone books of principal cities. Canada: Walkerville, Ont. Export Div.: New York

TRUSCON
AND NATIONAL
STEEL JOISTS

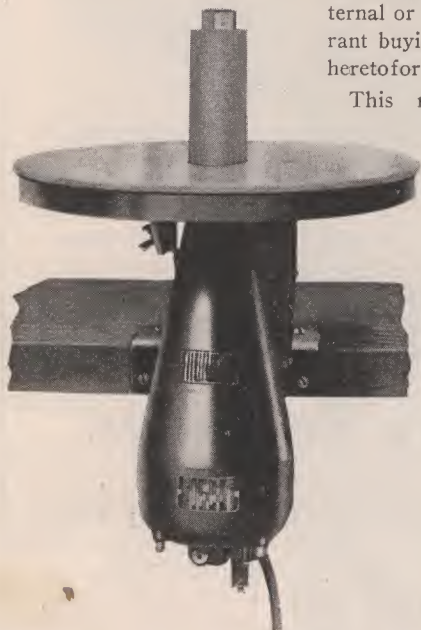
and provides ample power for cutting up to the limit of the lathe. It is controlled by a conveniently located switch and as there are no belts to shift, the safety element is well taken care of.

Standard equipment includes $\frac{1}{3}$ h.p. motor, two tool rests (6 in. and 12 in.), spur center, hand wheel, face plate, 10-ft lamp cord and plug to attach to electric light socket.



An Oscillating Spindle Sander

THE spindle sander here illustrated has just been put on the market for the pattern shop or woodworking factory that feels it has not enough internal or irregular work to warrant buying the larger machine heretofore offered.



A Good Spindle Sander for the Woodworking or Pattern Shop. Motor-driven and very inexpensive.

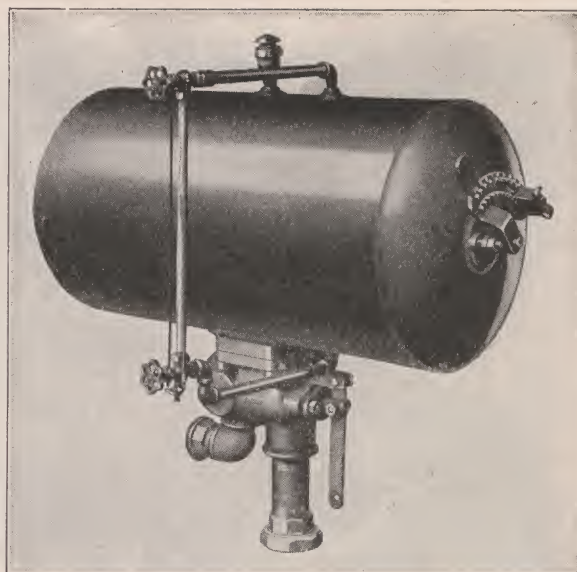
This machine can also be placed on a pedestal if desired.



Measuring Tank Concrete Mixer

A NEW water measuring tank designed for use on concrete mixers and pavers, is attracting much attention because of the unique device by which the water from the tank is measured. This device consists of an open-top trough, pivoted at both ends within the water-tight outer shell of the tank. By tilting this trough at different angles, it is made to hold more or less water and in this unusual way to regulate the amount of water that can be drawn from the tank.

A short arm at the end of the tank enables the operator to set the trough in the position that will allow just the right amount of water to be drawn off for each batch. A graduated sector, along which this arm rotates, indicates the amount of water being used.



The Water from This Measuring Tank Is Let Into the Mixer, Just So Much as Is Required for the Batch and No More. It assures good work.



Unique Patterns in Long-Lived Asphalt Shingles

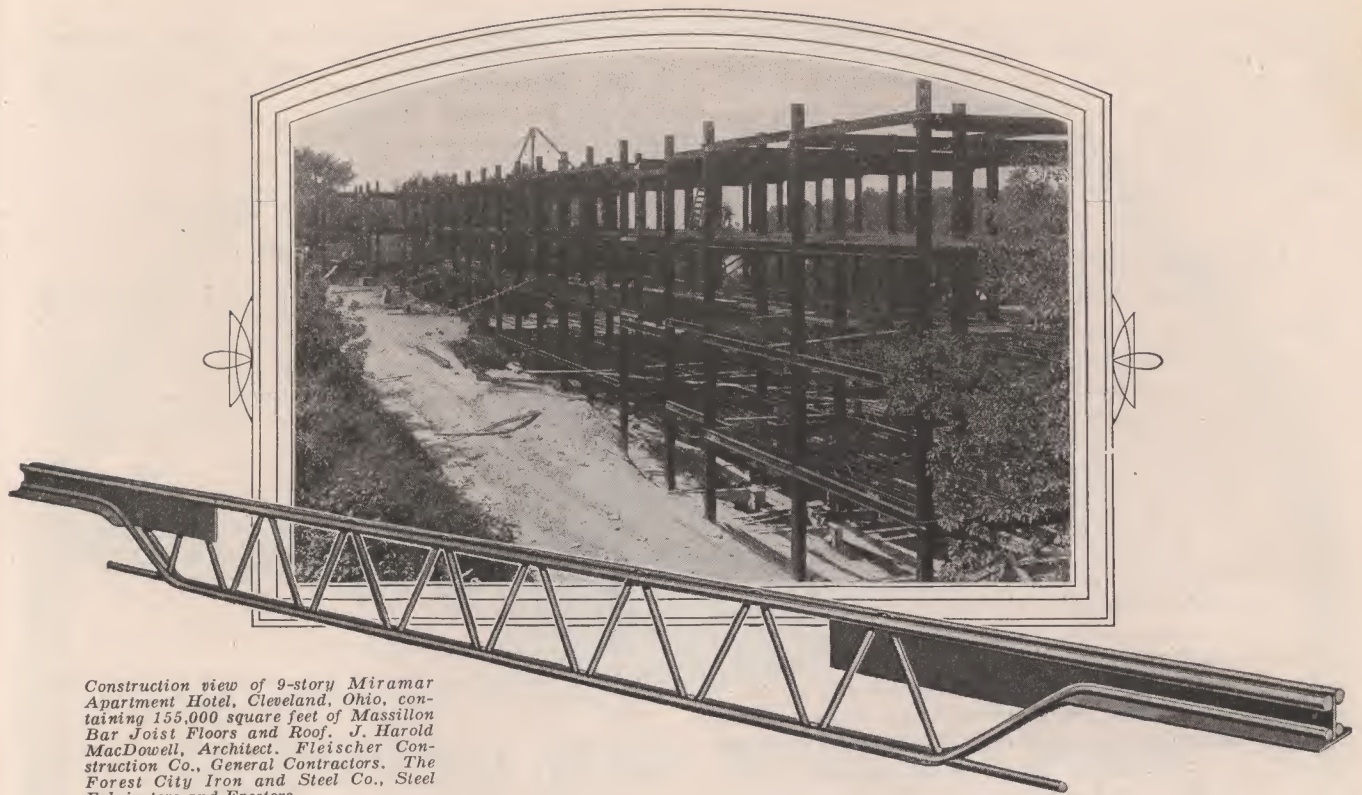
THE first asphalt shingles manufactured were patterned after the familiar wooden shingles; next came the asphalt strip shingles with three or four shingles to the strip, but many manufacturers had the idea that other styles would add distinctiveness, attractiveness and beauty to residences.

One of the recent advances in the asphalt shingle industry is a hexagonal shaped shingle that actually locks on the roof. One corner of this new shingle is doubled under, making a double thickness butt, through which is pierced a piece of galvanized metal strip which slightly projects beyond the edge of the shingle itself. This makes possible the interlocking of shingles as the piece of metal and the doubled butt hook into the space between the shingles.

The interlocking feature makes curling, warping and blowing up impossible since the shingles are locked on the roof. This



This Attractive Roof Is Composed of Hexagonal Shaped Asphalt Shingles That Interlock, Making Curling, Warping and Blowing Impossible.



Construction view of 9-story Miramar Apartment Hotel, Cleveland, Ohio, containing 155,000 square feet of Massillon Bar Joist Floors and Roof. J. Harold MacDowell, Architect. Fleischer Construction Co., General Contractors. The Forest City Iron and Steel Co., Steel Fabricators and Erectors.

Standardized Structural Units for Fireproof Floor Construction

The Massillon Bar Joist is a Standardized Structural Unit, designed to function as a joist in floor construction. Eighteen standard sections, designed like a bridge, cover the ordinary range of loads and spans.

Unequaled opportunity is afforded for the efficient, economical installation of all kinds of piping. Designing and erection costs are greatly reduced. No shelf angles, bridging or lath clips are required.

Every section is thoroughly inspected and individually tested to twice its rated load

carrying capacity. For sheer merit, dependability and true economy these joists will command your respect.

Massillon Bar Joists are sold by thoroughly reliable concerns located in all principal centers. You should be familiar with the joists and the distributing organization behind them. We will be pleased to send you complete information and safe loading tables.

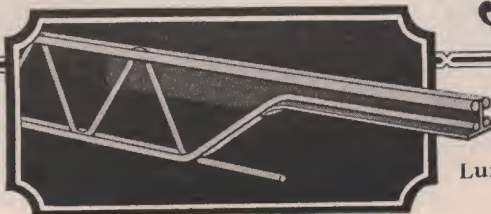
The Massillon Steel Joist Company
Massillon, Ohio

MASSILLON

PATENTS PENDING

BAR JOISTS

Also sold by Building Supply Dealers



Lumber Yards and Hardware Stores

feature also acts as an automatic spacer, insuring the accurate placing of the shingles on the roof. The doubled butt also gives added texture to the roof, eliminating the more or less flat appearance of the average asphalt shingle roof.

Viewed from the standpoint of economy this shingle can be applied with fewer nails, laid more quickly and with fewer men than any other type of asphalt shingle.



Cutting Construction Costs with Header Tile and Backer Tile

TILE is a very satisfactory material for backing up brick, stone and other materials. It makes a thoroughly bonded, substantial and permanent masonry wall.

There are two units used, backer tile and header tile. The backer tile is cut to convenient lengths to allow the brick work or other facing to be bonded into the header tile with full header bond at any number of courses desired, and it is possible to work to any bond without cutting or use of slabs. Any thickness of mortar joint can be used. When bonded in this way, full bearing value for the entire thickness of the wall is allowed. When brick or stone are attached to wood frame work, or other backing, with metal ties or similar connection, the backing *only* can be considered as load bearing.

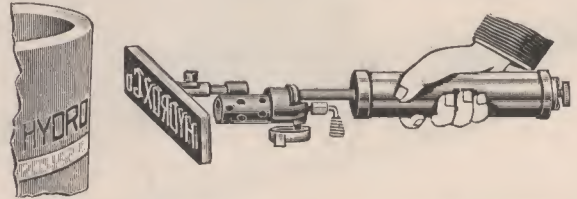
A wall of this tile faced with brick or other materials, is warm and dry. There are no through mortar joints where cold, heat and moisture can penetrate. The interior tile surface is deeply dove-tailed scored, and forms an ideal base for plastering. The use of tile eliminates one-third the weight and saves one-third the mortar ordinarily required, cuts down the number of workmen needed, and also the time of erection. Contrasted with brick veneer over wood frame-work backing, the advantages of a thoroughly bonded, light, and substantial wall of brick and header backer tile are easily seen. All the varied and attractive combinations effected in brick exteriors

are at one's disposal, and the resulting tile brick veneer wall resists fire, cold, heat and moisture and is not subject to expansion and contraction, cracking or settling. It is a form of construction becoming increasingly popular with architects, builders and owners everywhere.



Branding Tools for Owner's Identification

EVERY builder and contractor recognizes the advantage in having tools branded, particularly that class of tools which have a tendency to find their way into the homes of workmen, or which just naturally get lost, such as shovels, scoops, level boards, ballast boards, hammers, wrenches, etc. The most effective marking on tools is unquestionably the



The Name-Branding Unit of This Tool Is Heated by a Small Gasoline Torch. Good tool insurance, this.

builder's name or trade mark burned into the wooden handle as a brand.

The branding tool used by a great many builders and contractors is simply a convenient little gasoline hand torch, on which the branding iron is mounted at the proper point in front of the flame. The torch keeps the branding iron hot, it never being necessary to wait once the branding is started. The tool is manufactured by a well known manufacturer of heating specialties.



A Colonial Residence in Brick, Backed Up with Header Backer Tile. It is the home of F. N. Spole, Cranford, N. J. Harold E. Paddon, New York, was the architect.



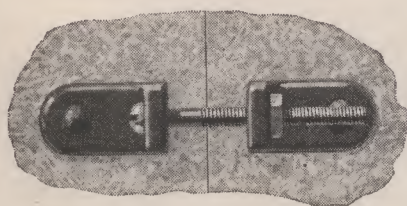


An Essential of the Well-Built Home

You know that a well-built heating plant—a heating plant designed and built to keep the whole house warm and at the same time keep it *clean*—is one of the first essentials of a well-built home.

To recommend or specify a Sunbeam Warm-Air Heating System is good business for you or any other contractor or builder. Here's why:—the construction of the Sunbeam Furnace assures the delivery of abundant warmth to every room without dust, smoke or gas. The owner's complete winter comfort is assured. His general satisfaction with his home is made more certain. Your reputation as a builder of good homes is increased. *Isn't that good business?*

Note These Sunbeam Air-tight Construction Features



Sunbeam Air-tight Casing Joint

The illustration directly above shows the air-tight construction of the Sunbeam Casing Joint. By means of the Sunbeam Casing Bolts the casing is drawn up air, dust and gas-tight on smooth, steel casing rings.



Sunbeam Double-Seal Cup Joints

Here is a cross section view of the radiator of the Sunbeam Furnace. Note the double-sealed, cemented joint. This air-tight joint construction throughout the Sunbeam Furnace prevents smoke and gases from entering the home.

To talk over Sunbeam Warm-Air Heating with the local Sunbeam Dealer will put you under no obligation and will be well worth your while. We shall be glad to send you his name and address. Just write your name and address across a corner of this advertisement and mail it to—

THE FOX FURNACE COMPANY, ELYRIA, OHIO
Boston Atlanta Cleveland Chicago Denver San Francisco

SUNBEAM

WARM-AIR HEATING

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Copyright 1923 by
The Fox Furnace Company

MOTOR TRUCKS *and* TRAILERS



The Truck Transmission

TO MAKE money out of the operation of a motor truck means that the truck transmission must deliver from the motor as near 100 per cent as possible of the power from the motor. This must be done at different ratios of speed, and also in reverse motion. The truck transmission differs from that of the passenger car in that although its service is the same, its operating conditions are entirely different. To transmit the power without a slip under the varying conditions under which a truck must operate requires that the transmission of the truck be designed and built after a principle different from the sliding gear transmission of the ordinary passenger car.

One excellent truck transmission principle is that of the gears-in-constant-mesh. Thus, the gears do not shift, but serve solely to transmit power. They are made oversize for this reason, and the shafts and bearings as well are made with a large factor of safety.

The shock of speed changing is borne by specially designed clutches and jaws on the sides of the gears. By the engagement of these jaw clutches, instead of

the shifting of gears, gear stripping is absolutely prevented and the speeds are changed much more quickly. This relieves the strain on the motor which comes in the ordinary transmission where the momentum of the truck is lost between shifts, requiring a slowly running motor to assume the burden of picking up the load.

Large pneumatic tires make it possible for greater speed over improved highways, and especially in inter-city hauling over well paved roads greater speed in motor trucks is being constantly demanded. In much of this work four-speed transmission is better adapted to the service than the three-speed, making it possible to use a lower ratio rear axle, and at the same time obtain the same maximum reduction in the low gear as with the three-speed. This is especially true of the larger sizes of trucks.

Selecting a Truck

In selecting a truck care should be given to finding out the kind of organization which will stand behind the servicing of the truck over the period of use.



The Builder and Contractor with a Well-Kept Truck Fleet Is Above the Petty Annoyances of Delayed Deliveries. This contractor is not worrying about material just now; he is using his trucks in the meantime for excavating and dumping.

You who understand truck design will be pleased with all of the modern features incorporated in the entire line of **FEDERAL** Motor Trucks



In the Building Field

Contractors, Builders and Suppliers all need dependable transportation — but when they buy Federals they also get long life and low upkeep. This Federal is owned by the Art Marble Mosaic Company in Detroit.

Write for Booklet S. 27, "Making One Thing Better"

FEDERAL MOTOR TRUCK COMPANY
Detroit, Michigan



This Plastering Contractor Finds His Truck a Valuable Aid in Getting to and from the Job, and in Getting A-1 Contracts.

The backing and co-operation of a well established, sound factory means that you will never be hung up with expensive delays for service or parts. In 1911 there were 109 truck manufacturers listed, and comparatively few of them are in business today, so it is worth a little extra time and trouble to find the long-established firm, with a reasonable guarantee of dependable future service ahead of it.

Another thing to consider in the purchase of a truck is its flexibility. A builder or contractor can use a wide variety of bodies in equipping his truck fleet; dump bodies for the conveying of sand, cement and gravel or the concrete mixture itself; flat bodies for hauling planks, form and foundation timbers; covered bodies for fine flooring and other interior trim. There are the removable bodies which are lifted with hoists bodily from the chassis and left to be loaded or unloaded at leisure, releasing the operating section of the truck for immediate hauling or other duty elsewhere.



Steel Windows for the Private Garage

By N. A. HARRIS

THE automobile has become such a necessity in our daily life that many home owners have their private garages built along with their homes. The need of an abundance of daylight and ventilation in a small garage to enable the car owner to work on the motor or under the car, and to draw off exhaust fumes (which accumulate rapidly when the motor is running) is realized by every motorist mechanic. To meet this need contractors and builders are installing steel windows in the private garages they build. Many favor the large 20-light units for brick garages.

These units fill a masonry opening 6 feet 10 $\frac{3}{4}$ inches by 6 feet $\frac{3}{4}$ inch. In this instance a stone sill is used, but a poured concrete sill will prove as satisfactory. In erecting a job like this lay up the walls, leaving prepared openings equal to the sash dimensions which are one inch less than the overall vertical and horizontal dimensions of the frame to set into the head, jambs and sill as shown in the details.

In detail 1, showing method of installing the

sash at the head, notice that two angle irons are used for lintel, supporting the masonry. Place these angles about $\frac{3}{8}$ inch apart to permit the entrance of the extending leg of the frame member as shown.

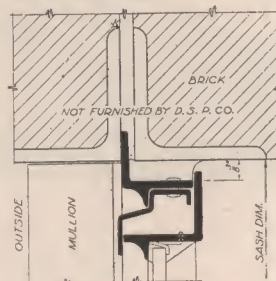
In preparing the jambs make them "off set" or knock off the corners of the bricks as the wall goes up, so as to form a rebate in which the extending leg of the frame will sit. Be sure to make the rebates large enough to allow leeway when putting the window in place.

In the sill detail, No. 3, a "mullion" is shown. This is only used to join two or more units together in the same masonry opening and should be disregarded in

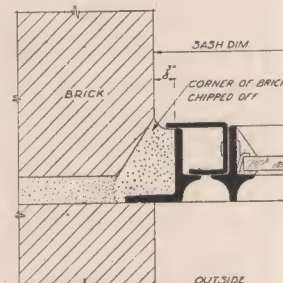
this case. If a poured concrete sill is to be used, block up under the frame of the window, at the corners and under the ventilator, with wood chips or blocks to hold the unit in its proper place.

The extending leg of the frame should sit in between the angles at the head and into the rebates at the jambs. When the window is true, grout in all around and point off. Then pour the sill high enough to imbed the extending leg $\frac{1}{2}$ inch.

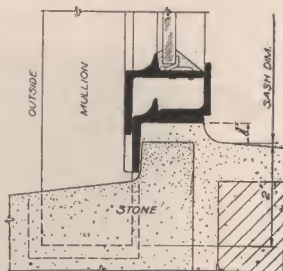
Do not remove the wires that hold the ventilators shut, as the units are much easier to handle if the ventilators are wired shut. Also remember that steel sash must be glazed on the inside, and insert the windows accordingly. Then there will be no difficulty in having the ventilators open correctly—in at the top and out at the bottom.



1. Head Sections.



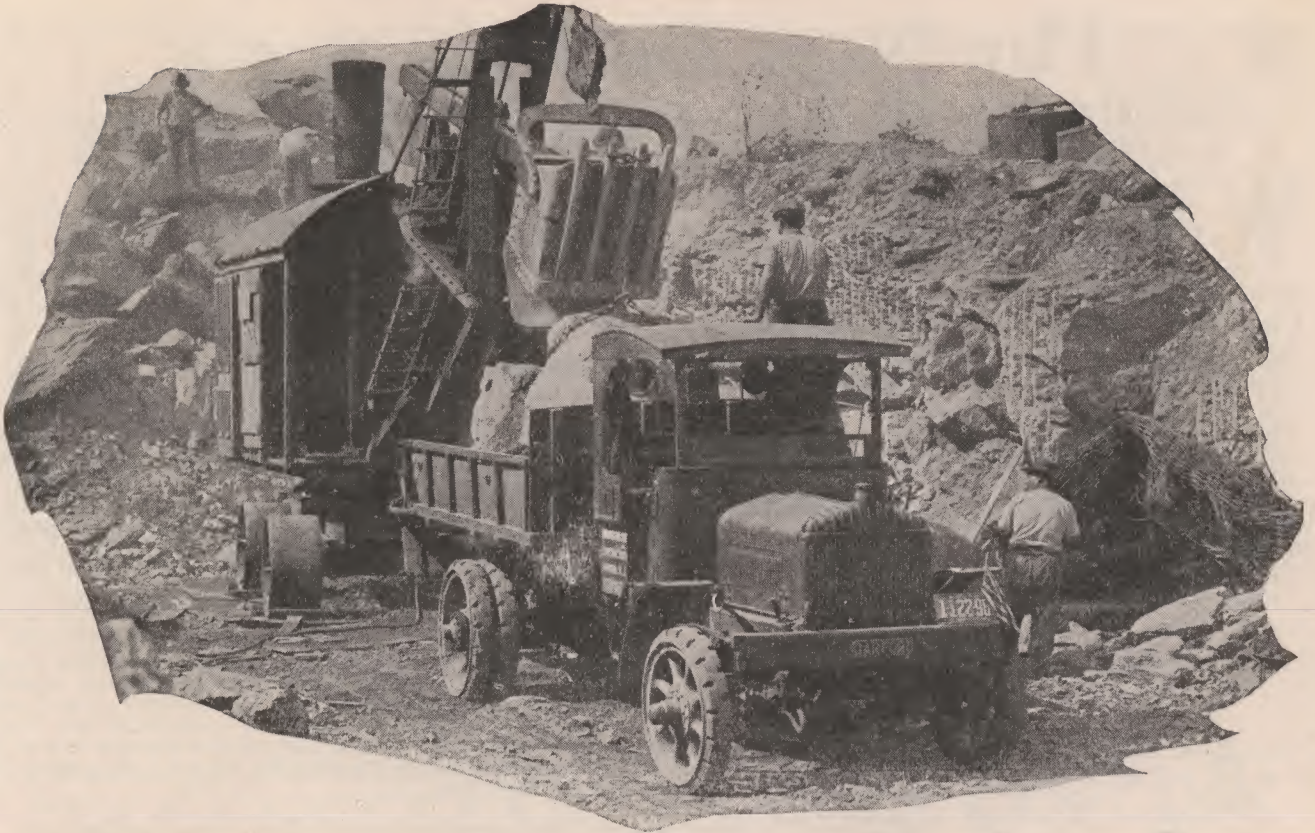
2. Jamb Sections.



3. Sill Sections.



Steel Windows Help Make the Brick or Concrete Garage More Fire-Resistant. The steel sash unit is more easily handled if ventilator is wired shut when inserting. Arrange for inside glazing.



Holding Down Your Heavy Haulage Costs

There is no job in contracting and building work that demands greater structural strength and mobile power in a truck than stone hauling. And unless a truck is especially designed for the work, it usually suffers under such severe strains, with resulting delays and losses to the operator.

R. Waddington & Sons, Inc., contractors, of Hoboken, N. J., are veteran specialists in stone hauling. They have learned that even the ordinary good truck cannot stand the "gaff" and earn a profit. That's why they operate a fleet of nine 5-ton Garfords built to handle their job.

The strongly reinforced body of the

Garford unit pictured above carries full capacity loads regularly, eliminating replacement and repair expense. This has been a big factor in the extremely low cost ton mile operation which this company reports.

Garford engineers are thoroughly familiar with hauling needs in the building industry. For years these trucking experts have helped contractors solve difficult transportation problems.

Garford publishes a truck operator's magazine — Haul-Age — which will be mailed to you regularly on your request. Write for the latest issue.

The Garford Motor Truck Company, Lima, Ohio

Manufacturers of Motor Trucks 1 to 7½ Tons

GARFORD

DEPENDABLE TRANSPORTATION

The New Decimal Scale

Reading in Feet and Tenths Instead of Feet and Inches, This New Triangle Boxwood Scale Cuts Figuring Work and Lessens Chance of Error

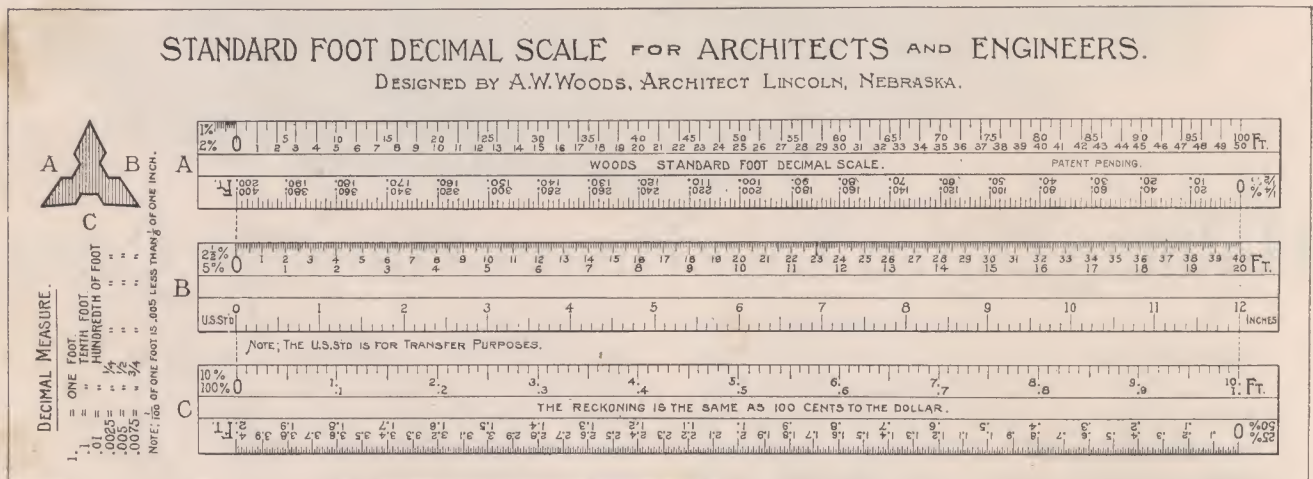
WHY, after all, should we use a reduction scale demanding continual division by 12 or 16 or 32? It complicates the work of making and following plans. True, "it has always been done that way," but we are changing our working methods every day. Why not begin with the simplification of the architect's and builder's scale?

A. W. Woods, architect, of Lincoln, Nebr., has patented a new scale which is divided into decimal fractions of a foot, and the percentage divisions of a foot are such that the architect and builder can readily reduce his plan to any desired scale.

For example: On one side of the Woods' Triangular

tific decimal system. A reduction based upon the easier decimal system makes it simple to scale off dimensions direct, since the Woods' method obviates the necessity of figuring the number of inches there are in, say, 137 feet 9 inches.

We have accepted the decimal system in our currency and would feel lost if we had to go back to any involved, fractional and unwieldy method of computation used. The reckoning of the Standard Foot Decimal Rule is on the same basis as one hundred cents to the dollar. No change has been made in the United States standard length of foot; no adoption of the metric system is necessary.



A New Scale Divided Into Decimal Fractions of a Foot, with Percentage Divisions Such That Architects and Builders May Readily Reduce Plans to Any Desired Scale.

Rule are scales for reduction of .0025, .005, .01 and .02 of actual size; on another side are scales for reduction to .25 and .05; and on the third, scales for reduction to .10, .25, .50 and 1. The user has therefore simply to mark off, from the scale that applies to any given reduction, the correct quantity, without calculation. On one side of the triangular rule is a scale in standard foot and inches which can be used for transfer purposes.

Engineers have long used a scale divided into inches and decimal fractions of inches. The necessity of translating these figures into 12ths or 16ths or 32nds when the engineers' notes are received in the office and plans are to be drawn therefrom by the inch scale has always caused architects and builders considerable extra labor and time and leaves open the opportunity for error.

There can be no good reason given for this adherence to an involved method of compilation of reductions except that "it has always been done that way," states Mr. Woods. There can be no denying the advantage of this simple system of measurement which eliminates odd fractions and deals with the more scien-

Mr. Woods, the inventor of the Standard Foot Decimal Rule, offers his invention as something arrived at, not in a few days, but over a long term of years of practical experience at the drafting table. For a great many years he has been associate editor of *AMERICAN BUILDER*. He has long been known as an authority on the use of the Steel Square and his Key to the Steel Square, now in its eighth edition, first appeared as a series of articles in this paper, as many of our subscribers have grateful reason to remember.

As a companion piece to the architect's and builder's scale Mr. Woods is producing a 2-foot pocket rule for the use of mechanics on the job in following plans prepared with the decimal scale. One foot of this rule will be divided according to the decimal system, and the other in inches and eighths. The subdivisions, in each instance, will appear on the inner edge of the rule. The decimal divisions will therefore appear directly opposite the standard divisions when the rule is half open, and will thus admit of immediate comparison for purposes of transfer.

This rule ought to simplify many slide rule and table computations.

ELECTRIFY ALL BUILDINGS

A Department of Up-to-date Information
for all who Plan and Build

WE, of the electrical industry, are very gratified to have the privilege through this department of talking to the men who plan and build the homes of America. We have a message of great importance to all. Follow it carefully, and you will make your homes and other buildings more modern, more attractive, more salable and more livable.

Electrify all buildings. Plan from the beginning on adequate wiring, adequate outlets and a proper investment in lighting equipment. Look ahead and see the ever-growing use future occupants will want to make of electrical appliances and labor-saving electrical conveniences of all kinds. You will find this a policy and a line of approach that will instantly appeal to your clients and prospective clients.

Make full use of the Electrical Section of the AMERICAN BUILDER, feeling free to call upon us of the electrical industry for information or suggestions. We are organized to help.

Milau R. Durr

General Chairman, Joint Committee for Business Development of the Electrical Industry.

Our Home Electrical No. 8

Beautiful Shingled House Illustrates Latest Ideas in Electrical Appointments and Wiring for Their Efficient Use

EDITOR'S NOTE: The Joint Committee for Business Development comprises representatives of contractors, dealers, jobbers, manufacturers and central station organizations including:

1. Association of Electragists, International, New York City.
2. Canadian Electrical Association, Montreal.
3. Electrical Manufacturers' Council (Associated Manufacturers of Electrical Supplies, Electrical Manufacturers' Club and Electric Power Club), New York City.
4. Electrical Supply Jobbers' Association, Chicago.
5. Lighting Fixture Dealers' Society of America, Cleveland.
6. Illuminating Glassware Guild, New York.
7. National Council Lighting Fixture Manufacturers, Cleveland.
8. National Electric Light Association, New York.
9. The Society for Electrical Development, New York.

The Joint Committee for Business Development is organized with an Executive Committee and a Headquarters Staff, office 29 West Thirty-ninth street, New York, H. A. Lane, Director.

THIS month we have as our Home Electrical a most attractive shingled one-family dwelling, and the electrical installation which has been specified makes it a most modern house in that respect.

For this house there have been specified duplex convenience outlets in every instance where one should be located. This may seem an extravagance but the home owner never knows when he will be desirous of using duplex type, and since the cost of installing them is but slightly in excess of the single variety they have been specified for all purposes.

The wiring has been laid out with a view toward making the use of electricity as simple and easy as possible. Since we have this energy at our beck and call why not make

its use as convenient as we know how?

On the front porch of this dwelling the illumination is controlled by a three-way switch which permits turning on and off the light either from inside the door or from the porch itself. The householder will find this to be a tremendous comfort when coming home late at night to be able to flood the porch with light before attempting to open the door. Then, after he has entered the house, he can light the wall fixture from a switch located just inside the door, and finally turn off the light on the porch after he has provided himself with sufficient light to see his way about inside. If he is going upstairs immediately, the three-way switch controlling the hall light enables him to extinguish it after he has reached the second floor.

To the right of the reception hall is a large living room fifteen feet wide by more than twenty-three feet long. The illumination for this room is supplied from a central ceiling fixture and from two side wall brackets. The main fixture is controlled by a three-way

switch, which permits its being lighted from either of the two entrances to the room. Three duplex convenience outlets are placed on three sides of the room, thus presenting every opportunity for the use of most attractive portable lamps of various kinds and labor-saving electrical appliances. On

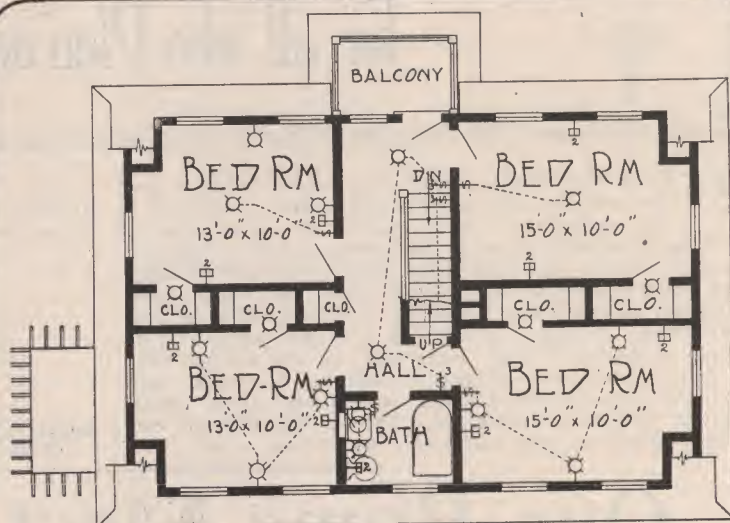


Our Home Electrical

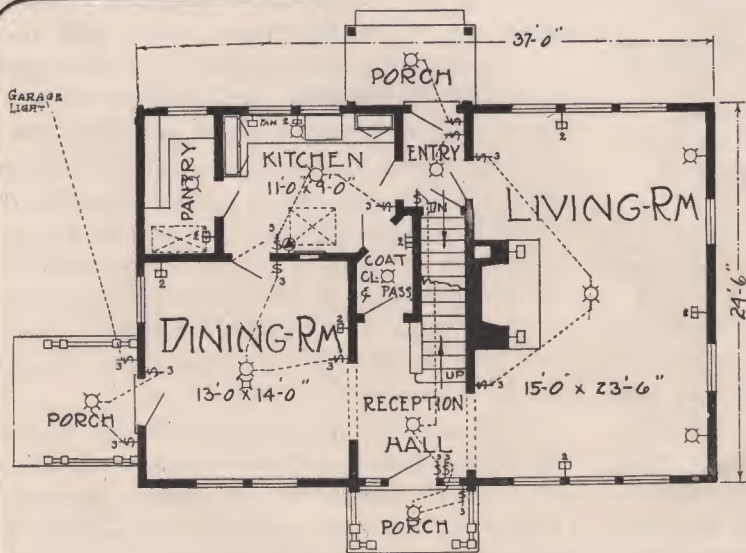
The Eighth

SYMBOLS

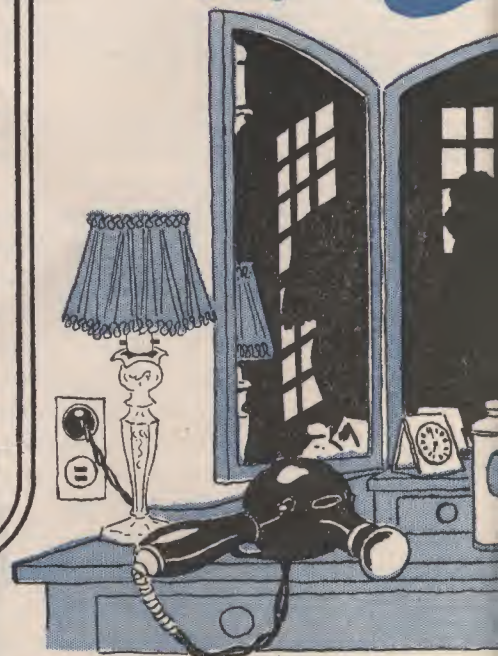
- CEILING OUTLET
- ⊠ BRACKET OUTLET
- ⊞ CONVENIENCE OUTLET
- ⊞ FLOOR RECEPTACLE
- ⊞ SPECIAL OUTLET
- S- SWITCH



SECOND FLOOR PLAN



FIRST FLOOR PLAN



A Well Arranged Interior Plan, with Ample Provision for Electrical Convenience Outlets.



Illumination in This Living Room Is Provided by Two Side-Wall Brackets, a Central Ceiling Unit and Several Portable Lamps.

each side of the fireplace, at a point a few inches above the mantle, are located single convenience outlets to be used with a pair of the attractive electric candlesticks which are on the market, a pair of torcheres or some other form of secondary illumination.

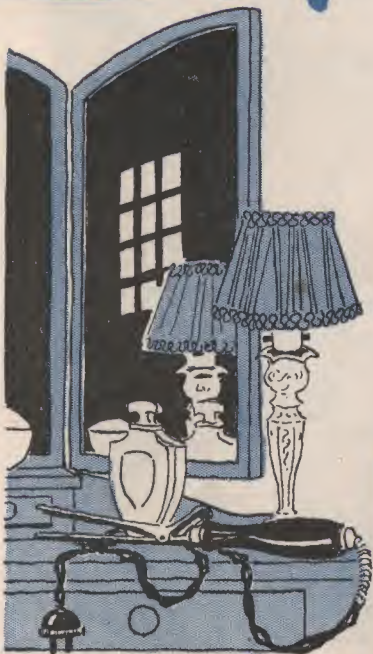
A three-way switch is likewise indicated to control the central ceiling lighting unit in the dining room. This, too, is located at each entrance to the room. Two duplex outlets are placed in handy locations in the dining room, and in the center of the room is specified a floor outlet which will be used to operate the

electrical appliances designed for use on the dining room table.

The light on the side porch is controlled by a three-way switch, permitting its operation from inside the side door and from the porch itself. The chances are that this entrance will be used almost entirely in connection with automobiles and will be of great convenience for the person alighting from the car to be able to turn on the light on the porch from a switch located on the outside. The garage light is also controlled by a three-way switch located in the garage and on the side porch. This enables the man of the house to turn on the light in the garage before going out at night to get the car, and

will be found to be a great convenience.

In the kitchen a three-way switch is arranged to control the central ceiling lighting unit from both entrances to that room. A duplex convenience outlet has been specified on the rear wall close to the drainboard or work table. This has been placed at a height of about 36 inches so as to give a slight clearance above the top of the table and eliminate the necessity of stooping over to attach any appliances. Another outlet has been placed high up on a rear wall to which is to be attached an electric ventilating fan, one of those won-





This Bedroom Is Well Equipped with Electrical Appliances. The attractive lights on the dressing table will prove handy for milady.

derful contrivances which do so much toward clearing the atmosphere in the kitchen and making the workshop of the home a better place to work in. There also has been installed a heavy-duty outlet for operation of an electric range with which all modern kitchens are being equipped. Switches inside the rear door operate the lights in the back porch and in the entry, and another at the head of the cellar stairs attends to the illumination of the cellar.

At the head of the stairs on the second floor is located a three-way switch which controls light in the lower hall and enables it to be operated from either of these places. There is another three-way switch located near it to control the two lights in the upper hall. With this arrangement it is possible to turn on these lights from either the front of the hall or at the door of the front bedroom.

Each bedroom contains a switch to operate the ceiling fixture or side-wall brackets which constitute the lighting arrangement in the room. The two rear rooms are lighted from central ceiling fixtures and the two front rooms from side-wall brackets. In each of the bedrooms will be found two duplex convenience outlets which provide means for using attractive portable lamps of various types and electrical appliances designed for use in the bedroom.

The bathroom lights are controlled by a switch located near the door and a duplex convenience outlet has been placed on the wall beside the basin, at about the same height, for use with an electric shaving mug, etc. A duplex convenience outlet has also been placed in the hall upstairs for use with a vacuum cleaner and possibly a portable lamp.

The wiring for operating the buzzer in the dining room, call bells at the door and any other signalling bell has not been shown on this plan. They should, however, be installed in every home and should be operated by means of a bell-ringing transformer attached to the lighting circuit. This eliminates all fussing with batteries and assures the home owner elimination of the familiar sign, "Bell out of order; please knock."

The Lighting Installation

For the porch of this house there is specified a lantern-type unit designed for this purpose. They are manufactured in a variety of types, sizes and finishes, and do much to enhance the attractiveness of the dwelling and at the same time afford excellent illumination for the porch.

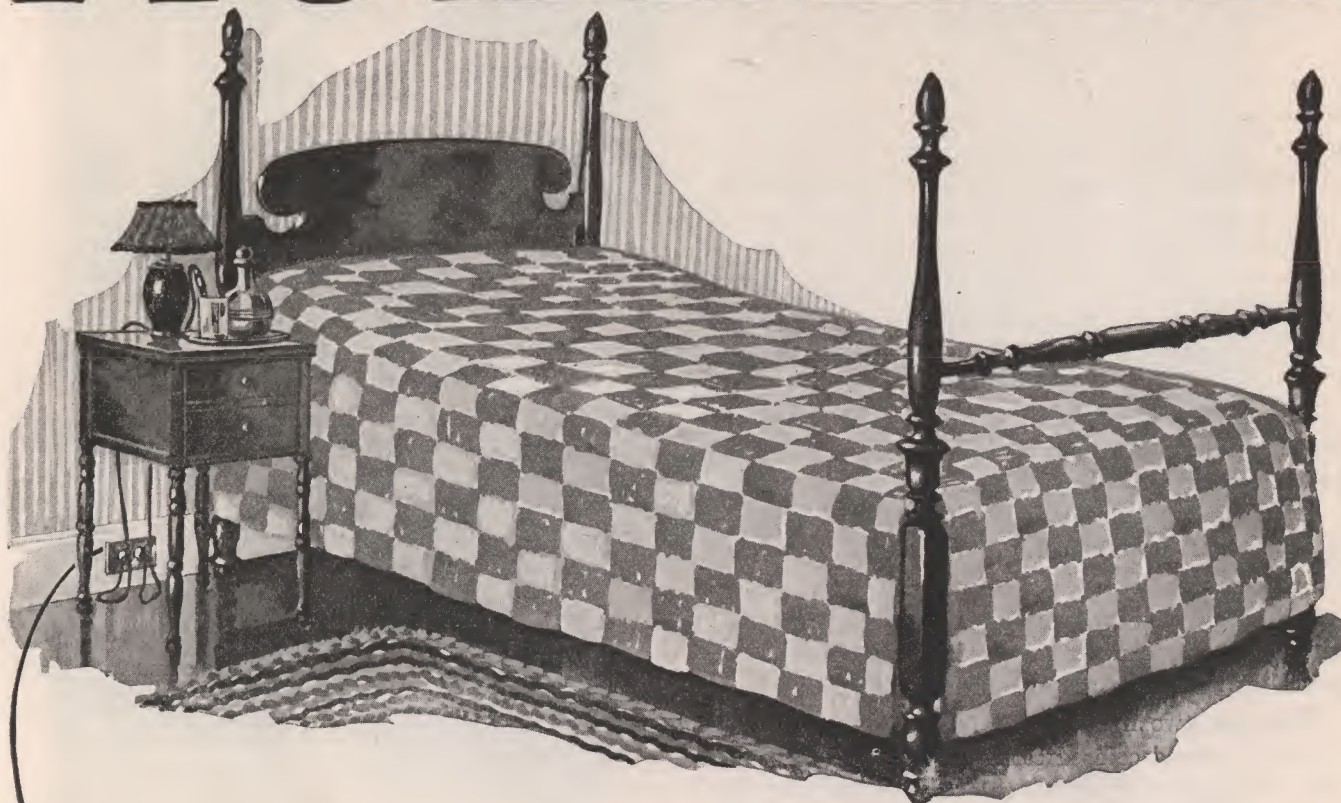
The main illuminating unit in the living room is a five-light candle-type fixture, silver or sand color finish, with shades of harmonious colors. It is very important that the direct glare of the lamps should be shielded by a shade of some sort. For the two side-wall brackets, which are controlled by pull chains, a one-candle-type fixture has been selected with shades and finish to correspond to those of the main fixture. The liberal supply of duplex convenience outlets on three sides of the room provides means for using portable lamps, and it is very likely that they will be used to a large extent to the exclusion of the installed units. They lend a decorative touch to the room and add to its attractiveness.

For the main illumination of the dining room, a dome-type unit has been selected. If such a fixture is



A Candle-Type Fixture Is Used Over the Table, and Side-Wall Brackets Similar as to Finish and Shades Plank the Windows. Note the goodly supply of electrical household appliances.

HUBBELL



Beside the Bed— A Duplex Outlet

A Hubbell Duplex Convenience Outlet, thoughtfully located where the bed goes, provides current for the table lamp and, in addition, the water heater, baby's milk warmer, heating pad, or fan.

Hubbell Convenience Outlets, Duplex and Single, are made with shallow bodies for thin partitions and require no additional wiring. The double Te-Slots accommodate any standard plug cap, whether the blades be parallel or tandem.

We should welcome an invitation from any architect to confer with him with regard to the most favorable location of Convenience Outlets in any class of building.



Duplex Convenience Outlet.
Composition body No. 5890;
Porcelain body No. 6257.
Stamped brass push plate for
either of above, No. 6258.



Hubbell Convenience Outlets
are also made in the single
types shown above with round
or rectangular plates.

HARVEY HUBBELL INC.
ELECTRICAL WIRING DEVICES
BRIDGEPORT CONN. U.S.A.



Remember it's the Te Slots, that make outlets "Convenient"

properly hung it concentrates the major portion of the illumination on the table and throws a diffused light in the faces of the diners which will be of the proper intensity. For this room no side-wall brackets have been specified, and it is assumed that attractive candle-type portables will be used on the buffet, a duplex convenience outlet having been placed on the side of the wall where this piece of furniture will probably be located.

The kitchen light will be one of those attached close to the ceiling, which are being featured by the electrical industry. They are of an encircling globe type, with a white globe which gives an excellent diffusion of light in all directions and which has a cheerful effect on the room in general. In addition a wall bracket with a pull-chain socket has been placed near the work-board, where it will be found of great advantage in overcoming the shadow which is always cast at that spot by the person doing any work there. Both units will be finished in white enamel.

The unit in the pantry is a central ceiling one of the single chain or stem variety, and the metal parts should be white to correspond with those of the kitchen.

The lights on the side and rear porches should be ball-type ones, attached close to the ceiling.

In the entry and clothes closet on the first floor stem-type units may be used, the one in the latter arranged with a pull-chain socket since it is not controlled by a switch, as is the one in the entry.

There are two lights in the upper hall, which may properly be sand colored ceiling lights with eight-inch glass ball globes in light brown or sand color. A variety of wall brackets and ceiling units is available for

use in the bedroom, and when used with attractive shades they create a most pleasing appearance. The chances are that liberal use would be made of portable lamps of various kinds in the bedroom, and that they



An Attractive Wall Bracket Lends a Decorative Note to This Reception Hall.

would be used to permit the localized light which is so desirable.

For the bathroom a variety of units designed for such use may be selected. The usual central ceiling light has been eliminated in this room and two wall brackets flanking the mirror have been selected. After all, it is the mirror that should be illuminated for the purpose of shaving, etc., and this arrangement provides excellent light there. Bathroom fixtures are obtainable either in white enamel or nickel plated and add to the appearance of the room.

Putting the Idle Fireplace to Work

Electricity Offers the Way to Have "Firelight Happiness" Without the Dirt and Trouble of Burning Wood or Coal

EVERYWHERE there are empty fireplaces—empty because after a short while, the trouble of attending them and the dirt and ashes they make, overcome the desire for "Firelight Happiness." Furthermore, the householder finds that her draperies become ruined through continued burning of wood or coal. However skillfully the fireplace may have been constructed, some smoke and gas is almost sure to get out into the room.

The above, of course, refers to fireplaces with flues, but there are thousands of houses with mantels and fireplace openings with no flues whatsoever. In the older type of house, this is especially true, so-called "summer fronts"—cold, repulsive, ugly—cover what should be a fireplace opening. In all such situations, the longed-for firelight glow is denied the occupants.

If these "dummy" fireplaces without flues could be fitted with bright glowing coal fires; if these "summer fronts" could be removed and a bright cheery fire installed, what happiness would be brought into these homes!

It isn't the heat of the open fireplace that is so much desired as the comforting fire effect. The moderately heated home is warm enough. In the fall or spring, before furnaces are started and when nights and mornings are chilly, a little heat from the fireplace is welcome, but as a heating unit, the fireplace is not needed. Yet, even in such instances, the work and dirt of a real fire soon discourages its use.

Times have changed. An electric fire has been developed which so closely resembles a bright flaming coal fire that it is extremely difficult to tell the difference. It supplies that "firelight happiness" so much desired without causing dirt or trouble of any kind. A turn of a switch and the coals glow and flicker—another turn and the fire is out. As in all electrical appliances, convenience is uppermost.

This electric fire can be installed in all fireplaces—in those with flues and in thousands where no flues exist—for there is no gas or any other product of combustion that must be carried off, or otherwise vitiate the air in the room.

This does away not only with the expense of building

When they stop
and ask

"How about outlets for conveniences and floor and table lamps?"—you take them from room to room and show them that you have anticipated all their needs—both present and future.



"Homes Electrical" by the Thousands

A hundred and more model "homes electrical" in as many cities, will be visited this season by an army of home buyers, intent on having the comforts and conveniences that electricity alone affords.

For every model home publicly exhibited, hundreds of other electrical homes will be privately sold at good prices, and quickly.

The shrewd builders of the country have sensed the demand for electrical convenience and are preparing to meet it.

Any type or size of house can be made a model "home electrical" by complete convenience wiring with G-E Reliable Wiring Devices.

A slight addition to the cost—and you have a house sure to command a much better price.

G-E Reliable Wiring Devices, nationally known as the standard of excellence, are the home buyer's assurance of dependable electrical service.

Merchandise Department

General Electric Company
Bridgeport, Connecticut

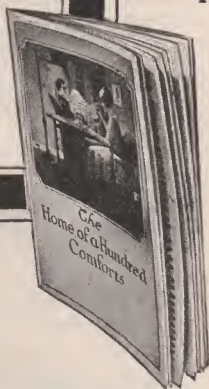
G-E Wall Elexit Outlet for "plugging in" side lights or electrical appliances.

G-E Twin Convenience Outlet for simultaneous use of two devices.

All dependable and experienced contractors using General Electric Reliable Wiring Devices are prepared to cooperate with you in making your houses "complete electrical homes."

National distribution of the booklet "The Home of a Hundred Comforts" has focused the attention of hundreds of thousands of home builders and buyers on complete wiring and quality wiring devices.

Send for your copy of this booklet today.
Address Section AB-11.



Wiring Devices

A GENERAL ELECTRIC PRODUCT

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

41-224



In This Grate There Is What Appears to Be a Continual Play of Warm Red in a Bed of Glowing Coals. The motion is simulated by means of an electrically operated mechanism within the mass of annealed glass, cast in coal sizes, and the heating unit is likewise electrical. No dust.

chimney flues, but saves the space that such flues require. It is not only a producer of "Firelight Happiness" but an auxiliary heating unit as well.

It commends itself to home builders for it is claimed to be an efficient heater, judging from tests made by heating experts.

This efficiency is attained by means of a reflector placed at the back of the grate in the form of a parabola—all the heat from the electric coils which are placed at the focal point of this parabola, are claimed to be reflected in a parallel plane out into the room at a height of about three feet; thus, no heat of any consequence gets up the chimney, if there is one, nor is any wasted in heating the walls of the fireplace. One sitting before the fire or at a distance from it would enjoy the full effect of the heat.

The installation of this fire is very simple. If only the firelight effect is desired, the regular lighting circuit can be tapped and an electric outlet can be placed, preferably at the rear of the fireplace near its floor. The four or five 40-watt lamps, needed to produce the firelight, draw from 160 to 200 watts, and can safely be operated on the lighting circuit.

The heating unit, of course, draws more current. In this case a separate and heavier wire should be run from the meter to the fireplace outlet. When this is done, both the lighting and the heating can be taken care of on one wire. Anywhere from 660 up to 3,000 watts heating capacity can be obtained by substituting various heating units which slip into place readily.

The grate is provided with a switch by means of which the light effect can be had without the heat or both be opera-

ted together. This switch is so arranged that more or less heat can be turned on at will. After the chill has been taken from the room the heating unit can be turned off and the firelight effect alone can be enjoyed.

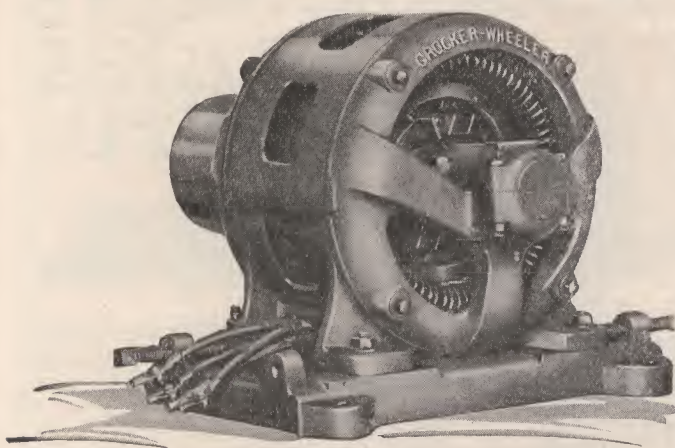
These fires are being rapidly installed over the country in many well known hotels, clubs, banks, schools, theaters, apartments and many large steamships. The "Leviathan" has 23. Builders are providing for them in new apartments and private residences because they bring the "Firelight Happiness," which everyone desires, without causing the dirt and work of coal or wood fires.



"Per Room" Requirements for a New Hotel

THE George A. Fuller Company, internationally known construction specialists, figure these as requirements for one single bedroom in a newly constructed hotel:

- 5½ tons of stone and marble of various kinds.
- 48½ barrels of cement.
- 3,034 bricks of all kinds.
- 682 linear feet of pipe of various kinds.
- 41 square feet of terrazzo and mosaic floors.
- 36½ square feet of tile floors.
- 454½ square feet of wood and cement floors.
- 34 square feet of roofing.
- 2¼ radiators.
- 1 fireplace.
- 3¾ doors.
- 1¾ windows.
- 63½ yards of expanded metal.



A SIMPLE MOTOR SUPERBLY BUILT

*Crocker-Wheeler Form "Q"
Induction Motor—2 and 3
Phase, 60 Cycle, 1 to 300 H.P.*

THE electrical design of a Squirrel Cage Motor is a compromise between a number of desirable qualities such as high efficiency, high power factor and high torque. Crocker-Wheeler, Form "Q" Motors are so designed as to give what years of experience has shown to be the best all around performance for general purpose motors.

In the refinements of their construction every make of Squirrel Cage type Motor is different. They run the whole scale from those that give nothing but trouble to those that give nothing but continuous satisfactory service.

It depends on the value the maker puts on his good name, and his determination that his product shall increase his prestige, plus his electrical knowledge and ability.

Crocker-Wheeler Squirrel Cage Form "Q" Induction Motors can be depended upon to give you satisfactory service under the most severe service conditions. Mechanically and electrically they embody the most desirable features.

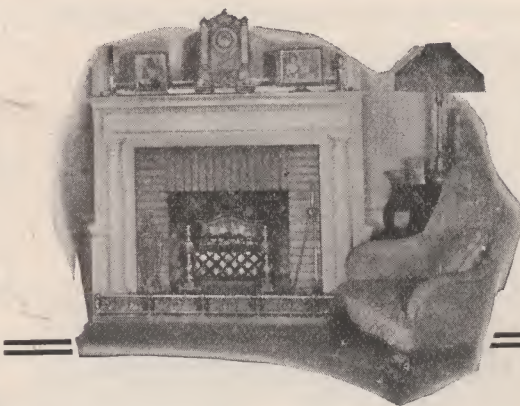
Form wound coils heavily insulated, vacuum impregnated, moisture proof and acid resisting, heavy shafts and large bearings, in all sizes from 1 H. P. to 300 H. P.

These motors will carry their full load continuously with a 40° rise.

CROCKER-WHEELER CO., Ampere, N. J.

| | | | |
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| New York | Baltimore | Chicago | Detroit |
| Boston | Pittsburg | Cleveland | Birmingham |
| Philadelphia | Buffalo | New Haven | |

Foreign Distributors: International Western Electric Co.



For

Fireplaces with or without Flues

You know of houses where there are dummy fireplaces. You know of others where chimney flues take up needed room and cost money, yet are never used because burning wood or coal means dirt, work and ruined draperies.

For all such a Magicoal Electric Fire provides the "firelight happiness" effect so much desired without any of the above drawbacks. At the turn of a switch the coals glow and flicker as in a brightly burning fire, so realistic that it is difficult to tell the difference.

Just provide an electric outlet in the fireplace, for Magicoal operates on the regular lighting circuit. For heat, heavier wire is needed.

Send for complete data regarding installation, heating capacities, and styles of grates to harmonize with mantles of any design or period.

Mayer Bros. & Bramley
413 West 28th Street, N. Y.

Sole Distributors for U. S. A., H. H. Berry World Patents

MAGICOAL

REG. U. S. PAT. OFF.

ELECTRIC FIRE

"Firelight Happiness" at the turn of a switch



400 KILMOTH CLOSETS

KILMOTH popularity is growing! Proof is shown by the number of closets in the Concourse Plaza that have been lined with this protective aromatic red cedar. Progressive builders realized the value of Kilmoth as a renting feature and are now profiting by their judgment.

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Check opposite your business ☐ Builder or Contractor
☐ Sash Door, Mill and Supply ☐ Lumber and Supply

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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

BOOKS, BOOKLETS and CATALOGS RECEIVED



THE literature and publications listed below are now being distributed and the concerns mentioned will be glad to send copies to any of our readers who will write and ask for them.

"Southern Pine Manual of Standard Wood Construction" is a new revised edition of one of the most complete and up-to-date timber handbooks we have ever seen. Thousands of architects, engineers, builders, contractors and carpenters know it, and it is used in technical schools as a text book. It will solve every every-day problem met with in wood construction, and is obtainable from the Southern Pine Association, New Orleans, La., at \$1.50 per copy.

"The Blue Book of Steel Windows," issued by the Detroit Steel Products Company, 2250 East Grand Boulevard, Detroit, Mich., shows the complete line of Fenestra products. A special section is devoted to Fenestra Reversible Ventilator Windows—which are designed for school and office buildings. Sidewall, counter-balanced, monitor and Underwriters' sash, as well as details of mechanical operators and installation are clearly shown.

"Hisey Portable Electric Tools" is a miniature catalog describing the 112 sizes and types of Hisey products. It has been prepared for dealers who know the value of placing complete, practical information in customers' hands. The book is 3¼x6¼ inches, space is left on cover for dealer's name, and it may be had free from the Hisey-Wolf Machine Co., Cincinnati, O.

"How to Own Your Home" is a guide book designed for the prospective small owner, issued by the Government, and obtainable for five cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. It carries a foreword by Herbert Hoover, Secretary of Commerce, and was compiled by John M. Gries and Jas. S. Taylor, of the Division of Building and Housing. It gives simple, common-sense information to the person of moderate means.

"The Convenience of Comfort" from the use of the Minneapolis Heat Regulator is handsomely treated of in an interesting book received from its makers, the Minneapolis Heat Regulator Co., Minneapolis, Minn. This little bronze controller and maintainer of household heat lives up to the title of the book, and the story of how it operates makes mighty interesting reading.

"International Service" is the name of a book issued by the International Steel & Iron Company, Evansville, Ind., and shows the way to the builder and contractor who wishes to specialize in structural steel and iron building work. The book tells of the very real "Service" this company renders in a way which can bring him more business.

"The Book of the Chicago Tower Competition" is published by the Tribune Company (Tower Competition), 7 South Dearborn Street, Chicago, Ill. It is 680 pages, 8¼x12¾ inches, contains full page plates of the prize winning Tribune skyscraper designs and all other designs submitted, in handsome format, and the price is \$5.00. More than worth it.

"Not a Kick in a Million Feet"



This Trade Mark on Roll
Roofing, and Shingles like
the Sterling Mark on Silver,
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FULL VALUE

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"Miles Concrete Equipment" is the new general catalog ready for distribution by the Miles Manufacturing Company, Jackson, Mich. It illustrates and describes this company's high grade and up-to-date block machines, power tampers, brick machines, mixers and molds, and has a separate section devoted to photographs and plans of houses made of concrete blocks and stuccoed.

"Natco Homes and Garages" is issued by the National Fire-Proofing Company, Fulton Building, Pittsburgh, Pa., and illustrated and described are the National load-bearing tile, header backer tile, double shell tile, with suggestions for their correct structural use in the building of homes and garages. A very suggestion-full book.

"Natco Wall Construction" is Bulletin 174, received from the National Fire Proofing Company, Fulton Building, Pittsburgh, Pa. It deals with various types of Natco load-bearing tile, and is a complete and practical text book for the guidance of architects and builders in erecting hollow tile bearing walls in all types of buildings.

"Sol-Lux Commercial Lighting" is a folder issued by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., on its new Sol-Lux Luminaire for commercial lighting. It contains information which should be welcomed by architects and builders generally.

"A Practical Course in Roof Framing," by R. M. Van Gaasbeek, has been received from Frederick J. Drake & Co., 1006 South Michigan Avenue, Chicago, Ill. This is an entirely new book, not to be confused with the original book of the same title, which is out of print. The price is \$1.50. Worth it.

"Furniture for the Craftsman," by Paul D. Otter, is at hand from the U. P. C. Book Company, 239 West Thirtieth Street, New York, N. Y. Price \$2.50. A most practical book for carpenters, builders, cabinet makers and manual training students.

"Donley Devices" is a handsome booklet from the Donley Brothers Company, Cleveland, O., and tells of fireplaces improved with Donley damper, fire baskets, ash dumps, ash-pit doors; of homes bettered with Donley package receivers, coal windows, outer meters, garbage receivers, clothes posts, basement columns and many other conveniences.

"Everything for the Fireplace," a book showing complete fireplace fittings, is at hand from the Colonial Fireplace Co., 4603 West Roosevelt Road, Chicago. Accompanying it are Blue Print Details of correct fireplace construction, with head throat and damper and instructions for setting.

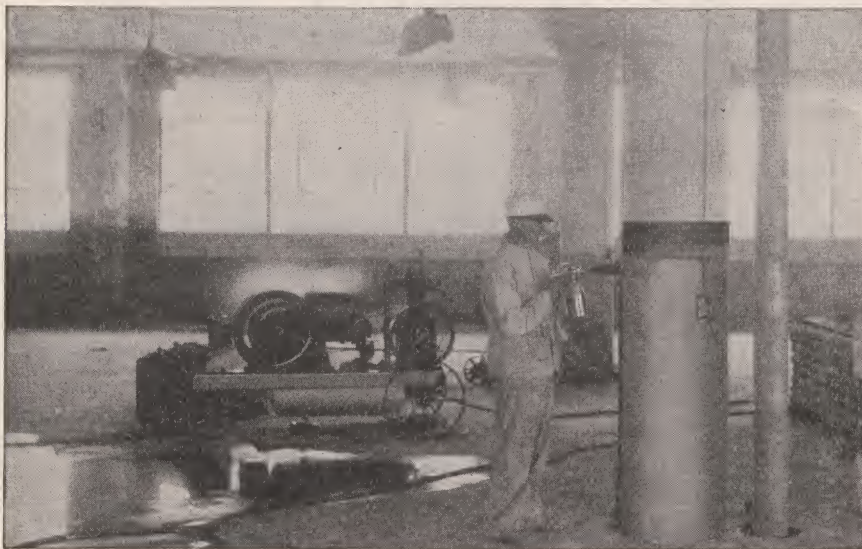
"The Disston Crucible" is the trade organ of Henry Disston & Sons, Philadelphia, Pa. We note this little magazine is now printed in two colors, adding to its attractiveness. It should interest millmen, lumbermen, foresters, manual training teachers and all interested in saws, tools and files. It is sent on request, free.

"Nineteen Stories of Lime" is a handsome, informative book issued by the National Lime Association, 77 West Washington Street, Chicago, Ill. Many fine buildings into whose construction lime entered largely are shown, with testimonials from the architects and engineers to the superiority of lime as a building material.

"Building Residence Lighting Business" is a monograph issued by the Society for Electrical Development, 522 Fifth Avenue, New York. It is a constructive book that should be of material help in increasing residence lighting business, and is well worth the price of one dollar asked for it.

"Proceedings Second Conference Paint and Varnish Sales Executives" is at hand from the Paint and Varnish Sales Managers' Council, 226 McWhorter Street, Newark, N. J. Some live information herein for the seller and user of paint and varnish.

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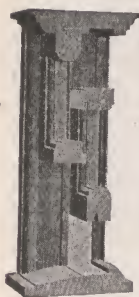


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"Data Book and Standard Specifications" for Pumps, Water Supply Systems, Pneumatic Pressure Tanks and filters has been received from the Duro Pump & Mfg. Co., Dayton, O. Essential and authentic information available gratis to architects, builders and engineers, and reinforced by the assistance obtainable from the widely-distributed branch offices of the company.

"Standing Seam Horsehead Zinc Roofing." Literature on this is on our desk from the manufacturers, the New Jersey Zinc Co., 160 Front Street, New York, and describes this Horsehead rolled zinc, cornice crimped, purest zinc roofing which weathers to an attractive gray color.

"International Service" is Supplement 22, issued by the International Steel & Iron Company, Evansville, Ind., Designers, Manufacturers and Engineers of Structural Steel and Iron for practically every building purpose. This illustrates and describes Modern Store Fronts, Public Garages, Industrial Buildings and Architectural Iron and Sheet Metal Products of interest to all architects and builders.

"Howe Trucks" is illustrated Catalog No. 9 of the Howe Trucks manufactured by the Howe Scale Co., Rutland, Vt. The users of these will be glad to note that the same high standards of design, material and workmanship of the past obtain in the present, iron and steel being of best quality, and the wood parts choicest selection of Vermont woods.

One Hundred Selected Plates from D'Espouy's "Fragments of Ancient Architecture." Published by The Pencil Points Press, 19 East 24th Street, New York, N. Y. Price \$6. Drawings of the best examples of the architecture of the past are indispensable to the architect and builder. We urge you to get this excellent book.

"Tentative Standard Specifications for Concrete Floors" is received from the Portland Cement Association, 111 West Washington Street. These specifications apply to floors in buildings, whether subjected to moderate or heavy traffic, and cover the laying and finishing of the floor; also its protection during early hardening. Architects, builders and engineers desiring to embody these in their general specifications will find them anticipating every conceivable requirement.

"Minneapolis Heat Regulator" is a folder received from the Minneapolis Heat Regulator Co., Minneapolis, Minn. It describes the thermostatic device made by them which governs the home heating unit, and enables it to maintain the proper degree of warmth required to keep the house most comfortable and healthful. "The Convenience of Comfort" is a booklet on the same subject obtainable on request.

"Heat Insulation—Cabot's Insulating Quilt" is a catalog received from Samuel Cabot, Inc., 141 Milk Street, Boston, Mass. It describes "Quilt," a scientifically constructed insulation for cold stores, refrigerators, ice-houses, etc., and for deadening sound in floors and partitions.

"Smith Mixers." The T. L. Smith Company, Milwaukee, Wis., is distributing a small folder descriptive of two of the Smith line of concrete mixers—the new 4-S Tilter (half-bag) and the 7-S Non-Tilting Mixer (full-bag). Special note is made of the new device used on the 7-S for operating the discharge chute.

"Half-Bag Tilting Mixer." A descriptive pamphlet on the Smith 4-S Half-Bag Tilting Mixer has just been issued by the T. L. Smith Company, Milwaukee. In addition to pointing out the several unusual features, there are views of both the two-wheel and the four-wheel style on the job.

The American Saw Mill Machinery Co., Hackettstown, N. J., have sent in some circulars illustrating and describing the excellent Bench Jointers, Hand Jointers, Dimension Saws, Saw Tables, Saw Benches—Stationary and Tilting—and Hand Planers and Jointers of their manufacture.

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REMODELLING jobs like this one, coming to you in a steady stream will keep your men busy all the time. Brasco advertising develops prospective buyers for you.

Brasco copper store front construction is easiest to install—so simple that it can be installed by unskilled labor. The result is a bigger margin of profit and a saving in time to you.

Once you establish yourself locally as "the Brasco man," the retailers will call for you one after another. Right now they are beginning to feel the need of doing something to stimulate business. A new Brasco store front will solve their problem.

We'll gladly explain how you, too, can cash in on these jobs. Write for our book of 20 attractive Brasco designs for modern store fronts.

BRASCO MANUFACTURING CO.

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Brasco
COPPER STORE FRONTS

Although a comparatively simple job to install, this Brasco front makes such a remarkable improvement in the store that it is only recognized by door at left and name on signs.

Before and After



"Lupton Casements and Double Hung Windows" is an attractive catalog issued by David Lupton's Sons Company, Philadelphia, Pa. It shows Lupton Steel Casement and Double Hung Windows in all standard opening arrangements, with illustrations and details and specifications which make this catalog a most helpful handbook for the architect and builder.

"Report of the Committee on Hospital Floors." This has been issued by the American Hospital Association, 22 East Ontario Street, Chicago, Ill., and the price is 50 cents. It was undertaken by the Committee, consisting of members of the American Hospital Association, to ascertain and describe the best types of floors for hospitals.

"Technical Notes" for May, 1923, has been received from the Forest Products Laboratory, Madison, Wis. Manufacturers of wooden products of any description would, we feel, appreciate being on the mailing list to receive this attractively printed, interestingly gotten up and informative book in its various editions.

"Timber: Mine or Crop" is a Yearbook of the Division of Publications, Department of Agriculture, Washington, D. C. It discusses very thoroughly the problems now confronting the country as a result of the lack of a forestry policy, and the resulting depletion of the nation's forests by logging operations and fire. The necessity for vigorous reforestation and for the conservation of our remaining forest is emphasized.

"The Constitution of the United States of America, with Amendments and References to Bill of Rights." The crying need for the present is to leave off agitating and begin "sawing wood." That is why E. C. Atkins & Co., Indianapolis, Ind., have thought it worth while to have these important national documents reprinted in pamphlet form. It is sent free on request.

"Indiana Limestone Bank Buildings" is a handsomely illustrated book issued by the Indiana Limestone Quarrymen's Association, Bedford, Ind., and which is devoted to showing the absolute suitability of Indiana Limestone for banks and other commercial buildings. It is Volume 4 of the Indiana Limestone Library, and will repay perusal by persons and corporations interested.

"Personal Liability for Preventable Fires" is Volume V. Chapter I, of the "Lumber and Its Utilization" Series issued by the National Lumber Manufacturers Association, Washington, D. C. It is issued for the attention of the home builder, in the hope that the data presented will encourage him to offset the enormous annual fire loss by more fire resistive and efficient construction.

"Things You Ought to Know About Casement Windows" is an attractive booklet issued by the Casement Hardware Company, 230 East Ohio Street, Chicago, Ill. It is an excellent study of the origin and architectural use of casement windows and is exceedingly well illustrated. Incorporated with the story of the casement window is the story of Win-Dor Casement Window operators, and their fundamental importance in making this type of window convenient and practical as well as beautiful.

"Concrete Data for Engineers and Architects" is a booklet in which are arranged in abbreviated shape the results of the findings of the Lewis Institute Structural Materials Research Laboratory. These represent verifications of concrete structural principles by thousands of tests. Write the Portland Cement Association, 111 West Washington St., Chicago.

"Eureka Brick Cleaning Machine." This folder describes the brick cleaning machine manufactured by the Maroa Manufacturing Co., Maroa, Ill., and outlines a way of salvaging old brick by trimming off the mortar.

Preferred—

TO the buyer who has learned the Economy of Excellence, CAMEO is the preferred enamel. Greatest satisfaction is assured by the better working and longer wear of this cost and labor saving enamel.

Both Gloss and Matte were made to meet the demands of house owners and contractors who want the best enamel at reasonable price.

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House near Chicago, showing its "underclothing" of Cabot's Quilt, with furring strips over the Quilt, on which the outside finish is laid. Roof also insulated. Leon E. Stanhope, Architect, Chicago

Underwear for Houses

Underclothing makes people warm because it prevents the heat of their bodies from escaping. You can make your houses warm in the same way.

Cabot's Insulating Quilt

prevents the house heat from escaping. It insulates the whole house and saves the heat from the heater—that costly heat. It keeps the house warm on the smallest amount of coal; saves one-quarter to one-half of the coal bill. Makes the house comfortable for all time. Preserves health and saves doctor's bills. Makes the house cooler in summer. Quilt is not a mere felt or paper, but a scientific insulator that makes the house like a thermos bottle.

Sample of Quilt with full details, and references to dozens of users sent FREE on application

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Cabot's Creosote Stains, Conservo Wood Preservative, Stucco and Brick Stains, Damp-Proofing



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"FISKLOCK" is made with the same care and skill as our "Tapestry" Brick, famous for a generation for beauty in brick construction.

A "Fisklock" Brick is equivalent in size to two standard bricks, and the ease with which it is handled makes it the most economical type of face brick construction. A "Fisklock" wall has all the advantages of solid brick, and in addition the air spaces within the wall afford better insulating qualities than any other material.

Let us show you how "Fisklock" will enable you to build your home economically, yet with the utmost in structural worth.

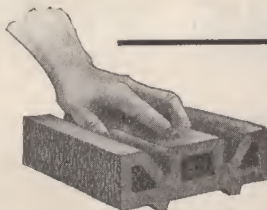
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FISKLOCK

THE TWO-IN-ONE BRICK

"Cooperstown in the Days of Our Forefathers" is Vol. IX, No. 3, in the White Pine Series of Architectural Monographs. With introductory text by Frank P. Whiting and many handsome photographs this Bulletin ought to be full of inspiration for the architect and builder interested in the Colonial. Address White Pine Bureau, St. Paul, Minn.

"The Year Book of the American Engineering Standards Committee, 1923," which has just come from the press, shows the great progress that has been made the past year in standardization projects affecting civil engineering and the building trades. Of the thirty-five standards thus far approved by the American Engineering Standards Committee, 29 West Thirty-Ninth Street, New York City, which has published the book, many are of special interest to the architect and builder. In a persistent, thorough and effective way its work is broadened and unified into a system of national industrial standards which cannot fail to be of the greatest benefit to the man specifying, using and paying for structural material.

"Radiator Traps" is a book giving the first series of tests of radiator traps ever published, listing the performance of traps manufactured by different makers. It is issued by the National Association of Building Owners, Edison Building, Chicago, Ill.

"Trade-Marks, Trade Names, Unfair Competition" is a very informing book issued for gratuitous distribution by Richards & Geier, Patent and Trade-Mark Attorneys, 277 Broadway, New York, N. Y. This is the third edition, carefully revised to embrace the changes in the law and practice of Trade-Marks. The authors have succeeded in making this an authoritative, concise textbook defining trade-marks and those imperishable principles of honesty and fair dealing which constitute the foundation of the law of trade-marks and unfair competition.

"Smith No. 375 Half-Bag Tilting Mixer." The T. L. Smith Co., Milwaukee, Wis., has just issued an attractive 4-page folder describing the company's newest product—the Smith No. 375, a half-bag tilting mixer that is of the same general design and quality as the regular line of Smith tilting mixers, known to contractors for over twenty years. The folder is printed in two colors and contains a number of illustrations of both models of the 375. The condensed specifications show that model RW-1 has two bronze-bushed steel wheels equipped with clincher tires. Model SW-1 has four steel wheels, 24 inches in diameter, with 3-inch grooved treads.

"Mack Model AB Chain Driven Motor Trucks" is the name given Catalog No. 101 describing 1½, 2 and 2½ ton Mack trucks and which may be had on request from the manufacturer, the International Motor Company, 25 Broadway, New York.

Bale Your Empty Sacks Quickly-Easily-Securely



With Rowe Rapid Sack Baler

Just lay on empty sacks, press down locking handle, twist ends of bale wires; release lever and remove bale. Makes neat, solid, triple-bound 50-sack bale. Impossible to pull out sacks. Saves time, labor and loss.

Lowest in Price Wires for baling 1,000 sacks included free. Simplest of all balers—easiest and quickest to operate. Nothing to break or get out of order. Light, compact, easy to move from place to place. Baled sacks take up but little space. Ship safely. Stop deductions for losses. Rebate on 3 bales pays for baler. Order direct. Extra ties \$1.65 for 500 (enough for 800 sacks.)

Push Down Self Locking
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240 pages, pocket size, illustrated, \$2.50 net postpaid.

A practical handbook covering the estimating on all building construction operations from excavating to roofing and water proofing.

It explains how to calculate cost of materials, of labor, of haulage, of overhead, of equipment, etc. It shows clearly how to calculate a price that will approach the actual cost as closely as is humanly possible.

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McGraw-Hill Book Company, Inc., 370 Seventh Ave., New York
You may send on 10 days' approval—Dingman's Estimating Building Costs, \$3.50 net, postpaid.

I agree to pay for the book or return it postpaid within 10 days of receipt.

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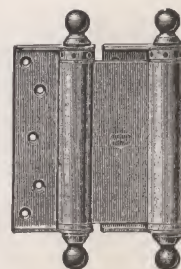
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How Many Pounds of Stucco Plaster Do You Get to a Ton?

The average buyer receives 2000 lbs., but when you order 1 ton of ASBESTONE Everlasting Stucco you receive delivery of 2375 lbs. of material, twenty 100 lb. sacks ASBESTONE Everlasting Stucco plaster plus 375 lbs. flake magnesium chloride.

Full weight combined with a quality product

ASBESTONE Everlasting Stucco is unsurpassed in covering power, unequalled in tensile strength, resiliency and elasticity.

The Stucco par excellence for exterior or interior plaster work. Hundreds of artistic Stone Dash finishes to select from.

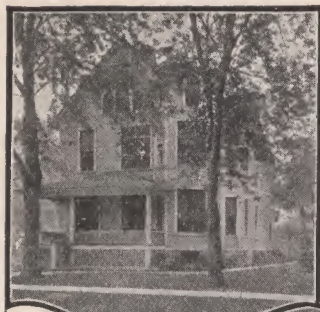
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Old home in La Grange, Ill., built over 30 years ago, remodeled into a 2 family flat and modernized by $\frac{3}{8}$ " oak flooring

AMERICA IS STILL
SHORT OVER ONE
MILLION HOMES
—Literary Digest

Every woman who is dismayed at the dust raised whenever the old carpeted floor is swept, will be glad to hear from you about $\frac{3}{8}$ inch oak flooring, especially when you tell her that this special thickness can be laid right over the old floor, one room at a time, if desired, and at a reasonable cost.



See page 481,
17th Edition.

Put your flooring problems up to our experienced experts. We will gladly serve you.

OAK FLOORS

NATURE'S GIFT OF
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$\frac{3}{8}$ " OAK FLOORS for cleanliness

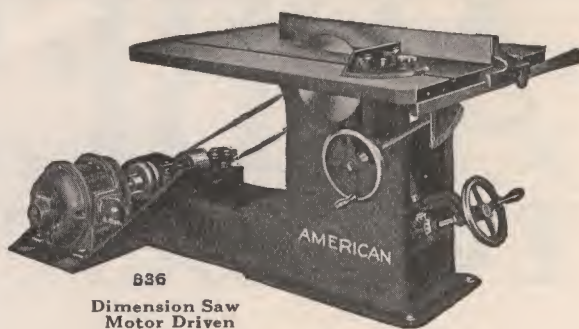
OLD homes are modernized, and housework is reduced, when $\frac{3}{8}$ " oak flooring is laid over the old worn softwood floors.

Keeping the house clean is one of the trials of the average woman's life, especially with the old-fashioned carpeted softwood floors, which are sure to retain the dust and dirt that children track in from out of doors. Under such conditions it is impossible to keep a room sanitary. Daily sweeping is insufficient, while dreary carpet beating only half does the work at best.

Bright polished oak floors are kept fresh and clean with a minimum amount of effort. Quite aside from their beauty, this advantage strongly appeals to the women of the home.

Are you overlooking the possibilities for business in the old homes in your city that need oak floors? If you will send us the names and addresses of such home owners, we will mail them our new booklet on oak floors. For your use, directions for proper laying and finishing, and other practical information, will be sent on request.

OAK FLOORING BUREAU, 1038 Ashland Block, Chicago



Modern Production says "Motor Drive"

HERE'S the latest model "American" motor-driven Dimension Saw. Strong and rigid, with solid casting base firmly gripping the floor, all ready to "hum" with production the minute you throw in the power switch. **Profitable** production, too, because it is designed for ripping, cross-cutting and mitering with attachments for boring, mortising, routing, dadoing, grooving, matching and tenoning. The mortise-boring attachment is a distinct machine, in no way interfering with the saw.

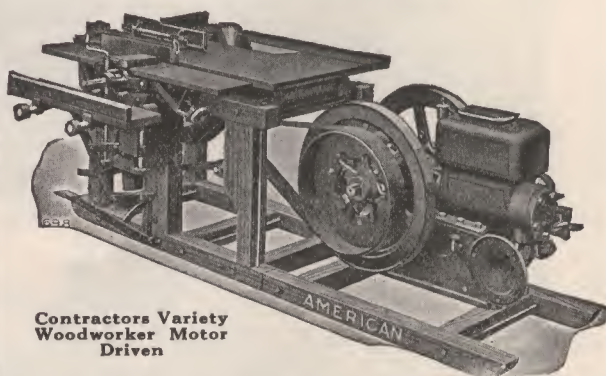
The "American" Contractors' Variety Woodworker with "motor drive" is another multiple producer, turning out 14 different kinds of cut on the one machine. Three men can work on it at the same time without interference.

Two machines to increase your production and two big facts to remember about them: Fact 1—they're **motor driven**. Fact 2—they carry the name "American."

Bulletin No. 79 gives a lot of profit-bearing facts about American Woodworkers and Saw Mills. Write for it today.

American Saw Mill Machinery Company

60 Main Street, Hackettstown, N. J.
1360 Hudson Terminal Bldg.



AMERICAN

Saw Mills and Woodworkers



For New Plaster Walls

HOUSES with decorated walls are easier to sell than those with plain, white plaster.

The builder, however, keeping in mind the danger of setting plaster usually omits wall decorations from new dwellings.

Waiting is not necessary. Walls may be decorated with Muralite just as soon as they are dry—and for very little cost.

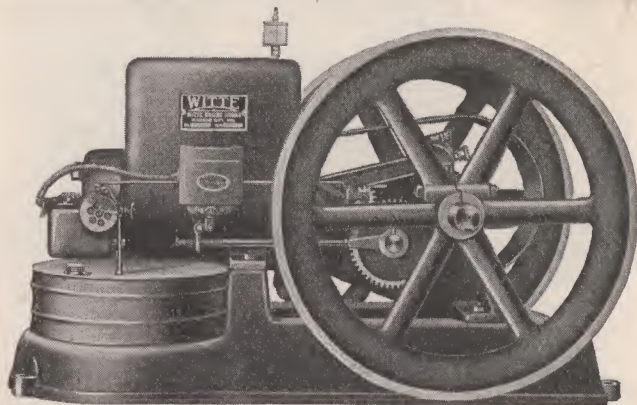
Muralited surfaces are soft, rich and artistic. They do not chip, peel or rub off.

Building contractors and home builders now use Muralite for new work. May also be applied over plain paper, wall board, burlap, etc. It is used by master painters from Maine to California and sold by paint stores everywhere. If your dealer does not sell Muralite, send for color card, giving us his name and address.

M. Ewing Fox Company
New York Chicago

A PAIR · A BRUSH · HOT WATER · AND
MURALITE
MAKES A PERFECT WALL FINISH

DEPENDABLE!



Use An Engine That Works Every Day!

It takes a ruggedly built engine to stand up year after year under the grinding, racking strain of contracting work. So for many years Contractors, with an eye on the "cost-sheet," have used the WITTE Throttling-Governor Engine—steady performance at the lowest possible cost EVERY DAY.

For these reasons, too, the discriminating manufacturer adds the WITTE as standard equipment on hoists, concrete mixers, etc. You can well follow this trail which leads to efficiency and economy because the WITTE

Burns Kerosene, Gasoline, Distillate or Gas.
Has the most efficient Throttling-Governor.
Equipped with the famous WICO (High-tension) Magneto.

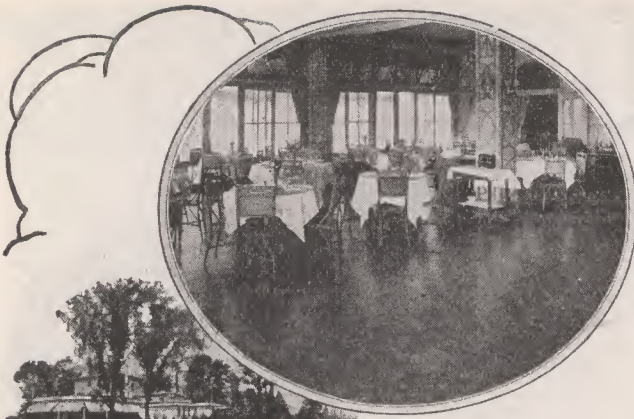
Motor Style Carburetor and Speed Regulator.

Many discriminating manufacturers use the WITTE as standard on pumping equipment. Our ENGINEERING DEPARTMENT will gladly analyze your needs and give valuable power suggestions.

There are 46 other points which definitely prove the superiority of the WITTE—may we send them to you without obligations on your part. Address Dept. 247 of the

Witte Engine Works
Kansas City Pittsburg San Francisco

WITTE
Throttling Governor Engine



Evergreen Farms Restaurant, Philadelphia, floored
with Ritter Appalachian Oak Parquetry Flooring
—block pattern.
R. E. White, Architect,
J. S. Rogers Company, Builders

No Added Cost for Quality

ALTHOUGH the initial cost of Ritter Appalachian Oak Flooring is slightly higher than ordinary oak flooring, yet Ritter Flooring when finished costs very little if any more. And with quality considered, this fine flooring is the most economical on the market today.

This is due to the mild texture of the Appalachian Oak from which it is so carefully milled and to the positive accuracy of its manufacture which affords a saving of time and effort in laying, nailing and finishing. One of the largest layers of floors in the East estimates the saving in *scraping alone*, by using Ritter Flooring, to be one cent per square foot or \$10.00 per thousand square feet.

The use of Ritter Appalachian Oak Flooring assures smooth, perfectly matched floors of fine grain and uniform color. No matter how pretentious or modest the requirement, there is a grade to meet the need.

Our booklet giving technical information on the laying and finishing of flooring will be mailed upon request.

W. M. RITTER LUMBER COMPANY

America's Largest Producer of Hardwoods
GENERAL OFFICES—COLUMBUS, OHIO

Branch Offices
Pittsburgh, Philadelphia, New York, London and Liverpool

RITTER

APPALACHIAN OAK

FLOORING



Over 60,000 Square Yards

THE Harris-Murray Company, Building Supply Dealers of Cleveland, Ohio, furnished the metal lath for the buildings of the Cleveland Hospital Group—over 60,000 square yards in all, of Sykes Diamond Mesh, 24 gauge.

Dealers in every community can benefit by supplying Sykes Metal Lath for buildings erected in their territory.

We make a type of lath for every place where metal lath is used—the small building as well as the large, for stucco or interior plaster, expanded or sheet lath.

Lumbermen and dealers, write now for territory.

Sykes Metal Lath Company

504 Walnut St. Niles, Ohio

Hot Water For All Small Homes

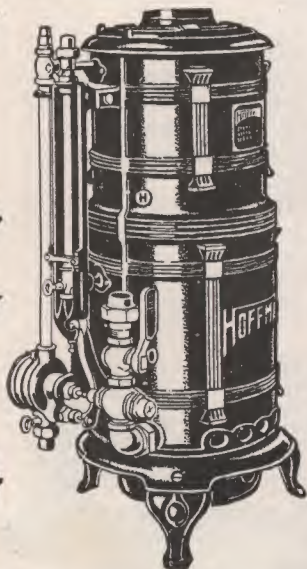
With

HOFFMAN

Instantaneous
Automatic Water Heaters

HOFFMAN has lowered the cost of instantaneous hot water service and made it available to builders of small homes by the development of four new heaters specially designed for cottages, bungalows and other small residences, and priced at the lowest level. Two new models, each in two sizes!

These new models have the same Hoffman improved thermostat and valve equipment used on the larger Hoffman heaters, and include all the latest improvements. Hot Water! Instantly! Just turn the faucet and the heater automatically turns the gas off and on! Put this greatest convenience in your home, whether you build it for yourself, or to sell or rent.



Send for detailed information, including prices, etc.

The
Hoffman Heater
Company

1113 Oberlin Ave.
Lorain, Ohio

Build better homes for LESS MONEY



This great 440-page Master Book helps you avoid costly home building blunders

Successful home building is no longer restricted to a favored few. "Building With Assurance" brings home building out from the realm of mystery. It is literally filled with ideas that help you reduce waste, cut costs, save time, eliminate experimenting, avoid mistakes and save money. It has been prepared expressly for home builders such as you, after years of experience. There is no other home building book to compare with it.

"Building With Assurance" contains page after page of beautiful homes

No matter what type or price, you will find homes in "Building With Assurance" that will interest you. There are homes costing \$3,000 to \$50,000. There are French, Spanish, Modern, Western and other bungalows; Georgian, Victorian, Tudor, American, Colonial and other homes. All are shown in beautiful colors with floor plans. There is help of authorities on arranging living room, dining room, bedrooms, hall, etc. The Master Book, together with the price supplement, gives you full information when choosing doors, sashes, stairways, built-in-furniture, etc. You have stabilized, standardized prices for making estimates. You can show your client exactly what you plan to use.

"Greatest of home building books," say readers

*There is no
added cost for
"Morgan-Quality"*

Home builders who have examined the book are enthusiastic in their praise. They say, for example:

- "Building With Assurance" is a gem."
- "It is truly an achievement."
- "It contains ideas that cannot be bought."
- "A real encyclopedia for builders."
- "It is intensely interesting."
- "Means better, prettier homes."
- "Would not part with it for \$50."

It is used and endorsed by over 15,000 architects, contractors and dealers. It gives you the inside facts that you need to build successfully.

Mail the coupon today for prospectus

"Building With Assurance" is not for general distribution. It is for contractors and builders. Our prospectus tells all about it—shows beautiful homes with floor plans, reproduces actual pages, letters from readers, etc. The prospectus is gladly sent to those who mail the coupon.

MORGAN WOODWORK ORGANIZATION

"MORGAN-QUALITY"
STANDARDIZED WOODWORK

ADDRESS NEAREST OFFICE, DEPT. T-11

Morgan Sash & Door Company, Chicago, Ill.
Morgan Millwork Co., Baltimore, Maryland
Morgan Company, Oshkosh, Wisconsin

Gentlemen: I am a contractor, so please send me at once copy of your beautiful prospectus, which describes "Building With Assurance."

Name.....
Address.....
Town.....State.....



When you buy tools / get your money's worth!

Take the popular Starrett Combination Square for instance. Here's value received if you ever saw it.

Seven high-grade accurate tools at the price of **one!** The Head containing a Spirit Level slides freely along the Blade and can be instantly removed or clamped at any desired position. As the Blade and Head can be used separately this Combination Square (No. 94) gives you a Rule, Miter, Marking Gage, Depth Gage, Height Gage, Square, Level and Plumb! And all in a single practical tool that takes up the least amount of work on the bench or in the chest.

Graduations—8ths and 16ths on each side. Plain and distinct—easy to read in awkward places or where the light is poor. Yet so clean cut and accurate that you can use the Blade for scaling blueprints.

Splendidly built and good for a lifetime's service. Starrett quality throughout. **Notice the price.**

Write for Catalog No. 22 "6" and the Supplement describing the new Starrett Tools.

THE L. S. STARRETT CO.

The World's Greatest Toolmakers
Manufacturers of Hacksaws Unexcelled
ATHOL, MASS.

STARRETT COMBINATION SQUARE



5754

SARGENT

Tools & Hardware



Accuracy—insured by SARGENT SQUARES

Sargent Squares are more than finely finished pieces of metal with unusually plain measurements and tables. They are accurate squares, long-lasting, shape-holding, and the Framing Squares are indispensable for obtaining the lengths and cuts of jack, valley, cripple, hip and common rafters, all the measurements being on the Square.

There are Sargent Squares with tables for various purposes. Ask your hardware dealer, particularly to show you the Sargent Take-down Square which fits the handy shoulder kit. Write for the Steel Square Booklet.

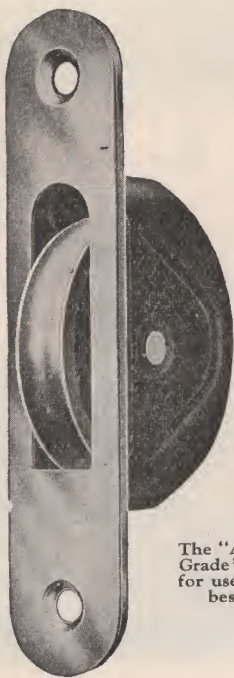
SARGENT & COMPANY

Manufacturers

51 Water Street, New Haven, Conn.

Sargent Planes are unexcelled for keenness, rigidity, and time-saving adjustments. Like all Sargent Tools and Hardware they embody only the finest materials and workmanship.





The "American High Grade" Sash Pulley, for use wherever the best is desired.

IT IS surely nothing more than common sense to equip a good window with an equally good sash pulley when the freedom of operation depends so largely upon this little device.

The more important the building the more essential it is that the window shall open and close freely and easily. One way of insuring this important requirement is to use "American" Pulleys.

The exclusive advantages of high grade "American" Sash Pulleys insure a smooth running and quick acting sash cord. The wheel turns freely and quietly.

Expensive structures should be equipped with the large size lacquered bronze "American" Sash Pulleys turning on roller or ball bearings, but different types may be had to fit various window and building requirements. Many grades cost no more than ordinary cast iron pulleys, although they are stronger and lighter and will wear longer.

All "American" Sash Pulleys are electrically welded and treated to resist—rust or corrosion. These good looking pulleys may be finished to match other hardware.

Literature, descriptive of this handsome, convenient sash pulley, will be mailed to you. Write for it.

The American Pulley Company

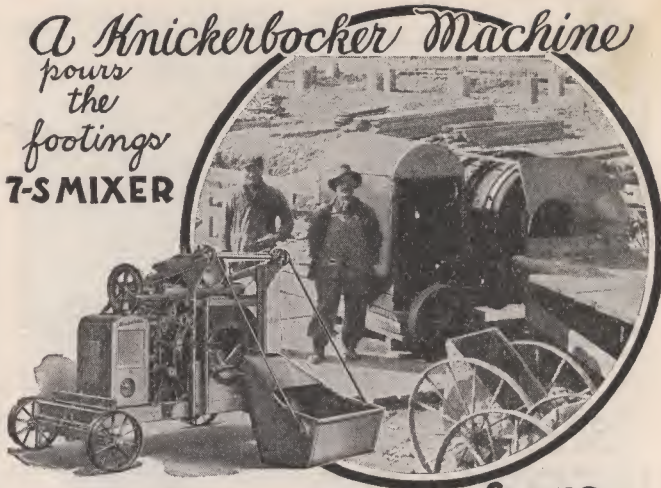
Manufacturers of Steel Split Transmission Pulleys,
Pressed Steel Shaft Hangers, Steel Sash
Pulleys, and Pressed Steel Shapes

4200 Wissahickon Avenue Philadelphia

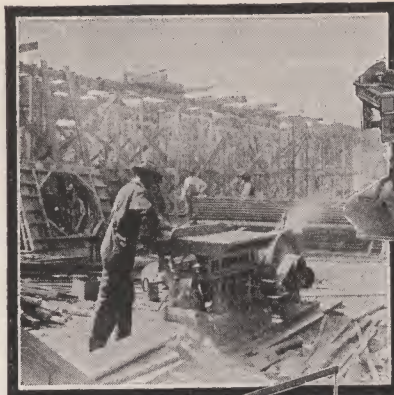
See our catalogue in Sweet's

AMERICAN SASH PULLEYS

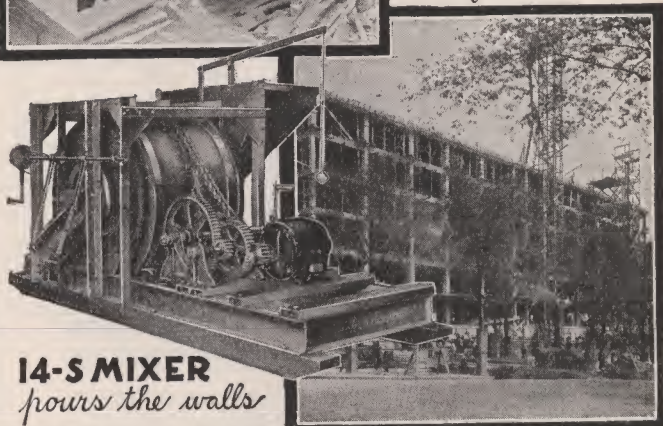
*A Knickerbocker Machine
pours
the
footings*
7-S MIXER



**SWING
CUT-OFF & RIPPING
MACHINE**

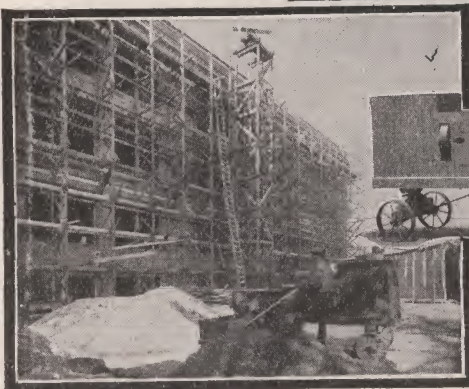


*builds the
forms*



14-S MIXER
pours the walls

*Mixes the
mortar and
plaster*



**NO-O MORTAR
AND
PLASTER MIXER**

A Knickerbocker for every use

To THE KNICKERBOCKER COMPANY, 525 Liberty St., JACKSON, MICH.

Please send Concrete Mixer catalog ☐ Saw Rig catalog ☐
Mortar and Plaster Mixer catalog ☐

Name _____
Street Address _____
Town _____ State _____



Sound REDWOOD Shingles —after 50 years exposure

The home of Andrew Simpson at Stockton, Cal., was erected in 1863. Its original Redwood shingles laid with old-fashioned cut iron nails are still in place and giving satisfactory service. Their good mechanical condition and freedom from rot is indicated by a few fifty-year-service shingles shown.

Redwood is permeated during growth with a *natural*, odorless preservative which protects Redwood lumber, moulding, trim, rails, balusters, door and window frames, shingles, etc., against all forms of fungus rot and decay.

For exterior construction and exposure to soil moisture, no wood is more durable. Grade for grade Redwood costs no more than other woods that cannot compare with it in resistance to rot and proportion of clear lumber. Redwood is light in weight and free from gummy, resinous compounds that often make painting difficult.

Frame houses sheathed in Redwood assure low upkeep costs for repairs and painting. Built of Redwood means built for permanence.

To acquaint Builders and Architects with Redwood's special fitness for many architectural and building construction purposes, we have compiled a "Constructive Digest" which we will gladly send on request.

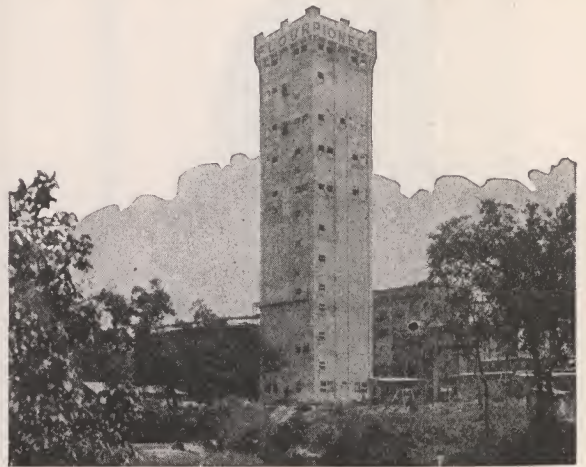
CHICAGO NEW YORK CITY
3066 McCormick Bldg. 933 Pershing Square Bldg.
THE PACIFIC LUMBER CO., of Illinois

SAN FRANCISCO LOS ANGELES
311 California St. Central Bldg.
THE PACIFIC LUMBER CO.

The Pacific Lumber Co.
Redwood

*The Largest Manufacturers and Distributors of
California Redwood*

FEBRISCO W E L D E D



Solid Steel Sash

You will often find FEBRISCO Welded Industrial Sash where you would least expect it—as in the large grain elevator shown above.

Super-strength and durability make FEBRISCO the ideal sash for any industrial job. It is made of solid rolled steel sections with all joints *welded*. These welds are so strong that FEBRISCO never racks out of square even when given rough handling on the job or in transit.

Any contractor who has used FEBRISCO will tell you that it is easier to install. And as long as the building stands FEBRISCO continues to give the same service as when first installed.



There are three styles of FEBRISCO Welded Solid Steel Sash—Industrial, Store-Front and Basement Window. For further information concerning any of them write to

**NORTH WESTERN
EXPANDED METAL CO.**

CHICAGO, ILL.

Exclusive Sales Representatives

MADE BY





Correct Engineering
Quick Installation
Easy Operation
No Upkeep
Long Life
and Right Price

"1080 Trolley Swivel"

GARAGE DOOR HARDWARE

for folding-sliding installations of from three to six doors undeniably possesses all these vital requirements.

No architect, dealer or builder ever goes wrong when "1080" is recommended and installed and every set put up always sells another.

Get Our Attractive Catalog Today

It will be a handy reference book for you and your customers on our complete lines of

Garage Door Hardware
Approved Fire Door Hardware
Overhead Carriers
Rolling Ladders and
Hardware Specialties

Get complete descriptive literature today on "1080" exclusive features

Allith-Prouty Co.
DANVILLE, ILL.

Representative Jobbers distribute A-P Hardware thruout the United States

"The Sign of Quality"



Better Work

***** My grandfather gave me one of your saws. He bought it in 1846. I used it from 1895. It still cuts though it is now almost a keyhole saw. *****

***** In railroad construction which I followed for 30 years, I had Disston tools in use wherever possible and found them tools of quality. *****

***** I am the happy possessor of two of your famous saws, and I think you can justly claim they're the best ever made. *****

Names on request

Whose word do you naturally take about a saw, tool or file,—that of the mechanic who is using one right on the job, don't you? Well, every day our mail brings us letters like the above from craftsmen who have been using our saws, and files,—some for a generation,—so we're letting them tell you what they think of them.

*The Disston Saw, Tool and File Book gives instructions on caring for tools.
Send 4c postage for free copy*

Henry Disston & Sons, Inc.

Makers of "The Saw Most Carpenters Use"
Philadelphia, U. S. A.

DISSTON
SAWS TOOLS FILES

The Concrete Floors in This Plant Never Need Repairs

From boiler room to office, every square foot of concrete flooring in this plant is *permanently* hardened, waterproofed, dustproofed and oil-proofed with "ANTI-HYDRO."

"ANTI-HYDRO" is extremely easy and economical to use. Being a liquid, it mixes readily with the gauging water—any unskilled workman can do it. "ANTI-HYDRO" saves its cost by reducing the finishers' time and eliminating overtime work.

Results are permanent

For 19 years "ANTI-HYDRO" has proved extremely successful on all types of concrete hardening and waterproofing work. Use it on your next job.

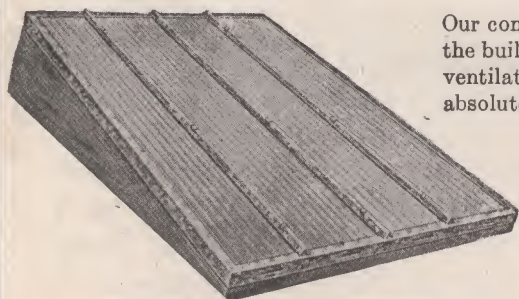
ANTI-HYDRO WATERPROOFING Co.
NEWARK NEW JERSEY



WASHBURN WIRE COMPANY, Inc.
New York City

Contractor: Costello Construction Company
Architect: J. P. Walther

Install Willis Products

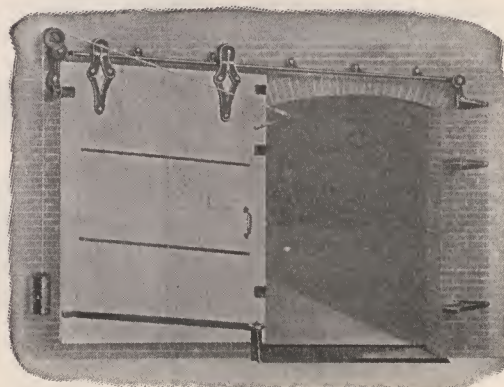
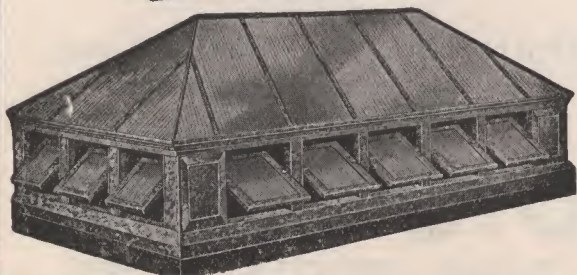
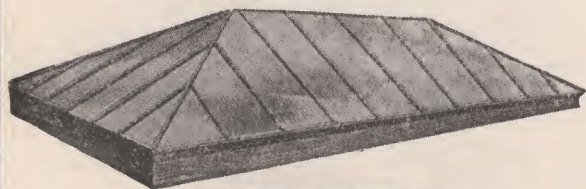


Our complete line of high quality and reasonably priced metal products enable the builder to choose just what his particular needs may be. Whether it is ventilators, skylights or fire doors, we can fill the bill promptly and with absolute satisfaction to builders and building owners.

We manufacture skylights and ventilators for all purposes; stores, garages, office buildings, shops, barns, hoghouses, etc. Our fire doors have been indorsed by the National Board of Fire Underwriters.

Send for our illustrated catalog and prices

WILLIS MANUFACTURING CO.
GALESBURG, ILL.



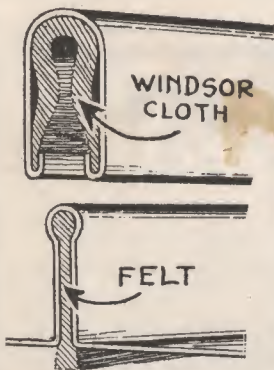
Athey

CLOTH-LINED

Metal Weather Strip

"Seals" windows — yet they can be easily opened

In thousands of the finest buildings throughout the country Athey Cloth-lined Metal Weather Strip has more than saved its cost of installation in a very short time. It is the only **cloth-lined** metal weather strip made — the only weather strip which really keeps out all dust, and drafts and noise. It "seals" windows without making them hard to raise or lower.



(Enlarged View)

The ATHEY is a two-member strip — the Athey rail fitting into and running **smoothly** and **easily** in the cloth-lined channel. The metal parts are of imperishable zinc — the cloth guaranteed by us to be rot-proof, damp-proof and moth-proof. Adaptable to wood or metal windows.

Write us for complete information. Also for a list of fine buildings where Athey strip has saved the owners money and inconvenience.

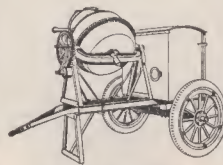
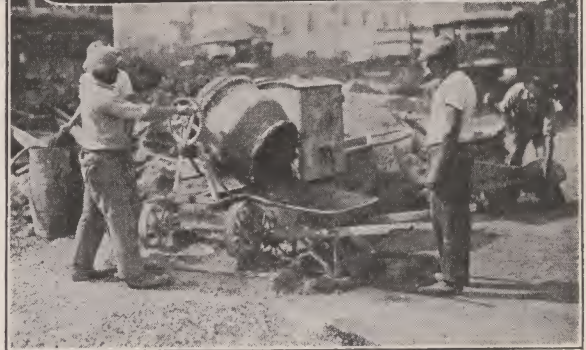
CONTRACTORS: There's money for you in selling and installing them. Some good territory open for exclusive distribution.

Athey Company

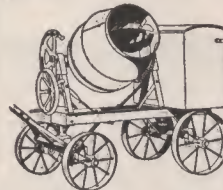
6014 West 65th Street - Chicago, Ill.

Kwik-Mix

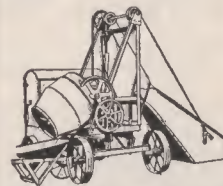
CONCRETE MIXER



Kwik-Mix Trailer
Capacity 3 and 4 cu. ft. mixed.
Comes equipped with pneumatic tired wheels and with power.



Kwik-Mix No. 4E
Capacity 4 cu. ft. mixed.
Comes also in 3 and 3 1/2 cu. ft. sizes. Can be had on trucks, without engine.



Kwik-Mix No. 4 LH
Capacity 4 cu. ft. mixed. Also furnished in 3 1/2 cu. ft. size. Shipped complete with Engine and Housing on Trucks with Loader and Builders' Hoist, all ready to run.

40 Batches an Hour - and then Some -

Turning out batches *consistently* is a habit of Kwik-Mix Mixers. A habit made possible through sturdy construction and *speed of operation*. Read how the performance of a 4L Kwik-Mix sold another.

"The first No. 4L Kwik-Mix Mixer we purchased has been in constant use on our work at Byberry, turning out about 40 batches per hour. It has been extremely satisfactory. Because of its excellent construction and work, we bought our second 4L Kwik-Mix and are glad to say we are decidedly well pleased with these machines and your service.

Yours very truly,
(Signed) Wm. R. Heins & Co.

This is but one of the many instances where performance *talks*. What other contractors get out of Kwik-Mix Mixers, you can get. Investigate this sturdy line of tilting mixers. They range in size from 2 cu. ft. to 7 cu. ft. of mixed capacity. You can get them with or without engine, loader or hoist — rubber-tired wheels as optional equipment. They are *light* on investment and *heavy* on profits. You'll never regret the few seconds it will take to fill out the coupon below.

KWIK-MIX CONCRETE MIXER CO.

1005 Cleveland Avenue
Milwaukee, Wis.

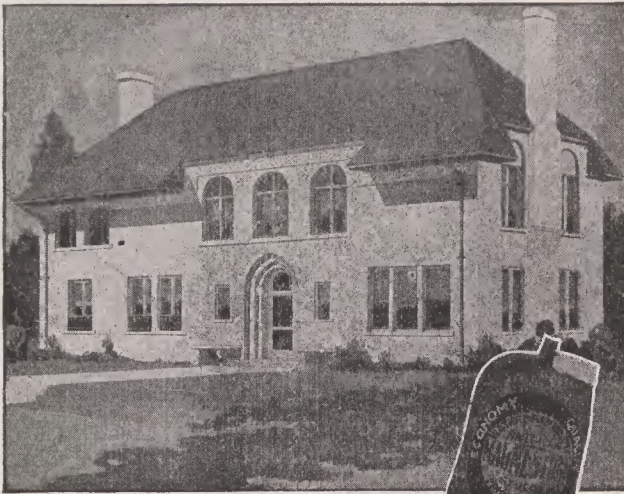
Kwik-Mix Concrete Mixer Co.
1005 Cleveland Avenue
Milwaukee, Wisconsin

Without obligation to me, please mail me your valuable New Kwik-Mix Catalog.

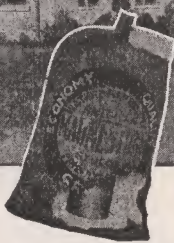
Name.....
Address.....
City..... State.....

MAGNESTONE

MAGNESTONE STUCCO



Notice that Binder is packed in separate containers. Mix with water only.



Manufacturers of—Magnestone Composition Flooring—the most practical and artistic floor for the home and public or commercial building (furnished in eleven colors)—also Smith's Colonial Mortar Colors, Magnestone Interior Plaster and Water Proofing Materials.

THE PRACTICAL STUCCO FOR PRACTICAL MEN

Red-E-All stucco is the contractor's natural selection because

- 1—It is most convenient to handle on the job.
- 2—It reduces labor cost on every job.
- 3—It increases the profit on every job.
- 4—Gives the contractor's customer greater satisfaction.
- 5—Red-E-All is the only practical form of packing that offers maximum convenience.
- 6—It will not deteriorate if ordinary good practice is followed for its storage.
- 7—It is manufactured from a practical knowledge of the contractors work.
- 8—The manufacturer is the largest producer of magnesite products in the world.
- 9—Prompt, courteous service is our custom and practice.
- 10—Sold only through building material dealers.

Contractors who have not used Magnestone Red-E-All Stucco will be agreeably surprised when they give it a trial. Write us or see the Magnestone dealer on your next stucco job. It will pay.

AMERICAN MAGNESTONE CORPORATION
Executive Offices: Springfield, Illinois.

PLANTS AND SALES OFFICES:
Ottawa, Ill. Springfield, Ill. Kansas City, Mo. Chicago, Ill.
Minneapolis, Minn. New York, N. Y. Detroit, Mich.

ARCHER SPEEDMOBILE

Saves Time, Men and Money

Here is offered the ideal machine for paving and building work.

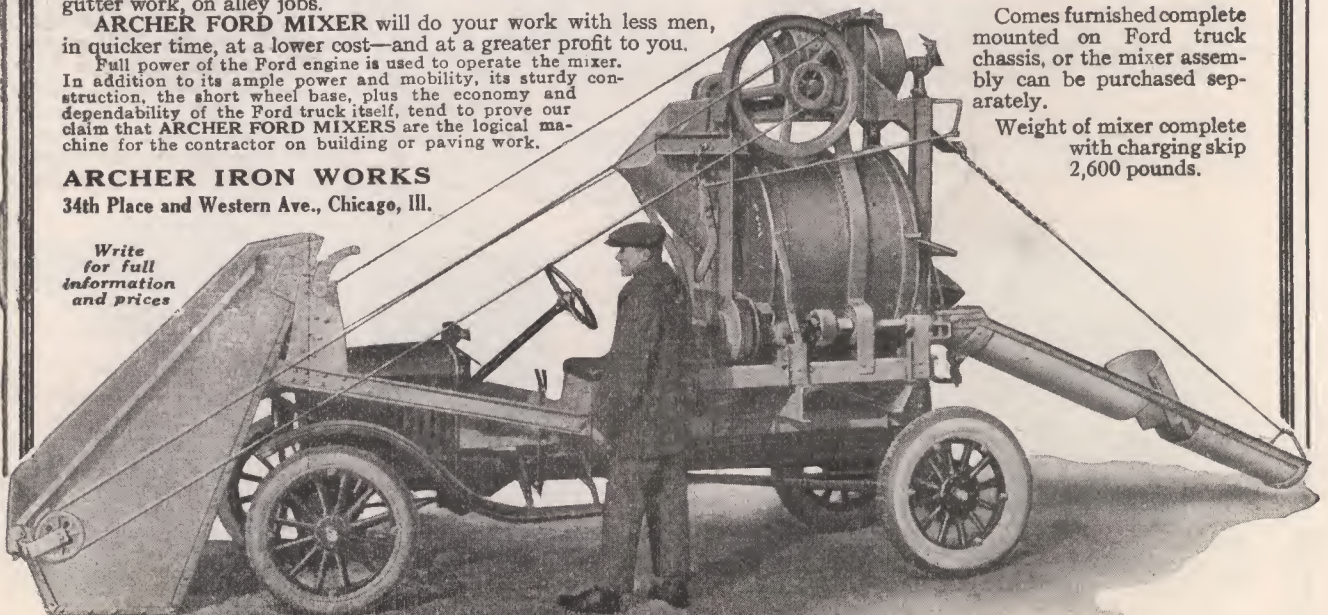
Practical road contractors will see this saving at a glance—especially so on small paving contracts, on curb and gutter work, on alley jobs.

ARCHER FORD MIXER will do your work with less men, in quicker time, at a lower cost—and at a greater profit to you.

Full power of the Ford engine is used to operate the mixer. In addition to its ample power and mobility, its sturdy construction, the short wheel base, plus the economy and dependability of the Ford truck itself, tend to prove our claim that **ARCHER FORD MIXERS** are the logical machine for the contractor on building or paving work.

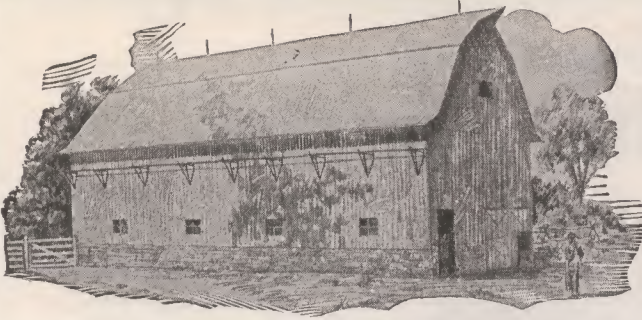
ARCHER IRON WORKS
34th Place and Western Ave., Chicago, Ill.

Write
for full
information
and prices



Comes furnished complete mounted on Ford truck chassis, or the mixer assembly can be purchased separately.

Weight of mixer complete with charging skip 2,600 pounds.



Two Men Scaffolded This Barn in 1 Hour

How long would it take you to put up scaffolds on both sides of a 60-foot barn? Magel Brothers, of San Jose, Illinois, put up 120 feet of scaffold on this barn in one hour, using two men—only two labor hours.

Can you equal that record? Anybody can with Reliable Steel Brackets. You can put up one of these brackets as fast as you can drive four 8d nails.

Read what Magel Brothers say in their letter:

"We bought 14 Reliable Brackets seven years ago and they are all in use today without a cent of repairs, and they look as if they will last seven years longer. They are the best investment we ever made in the equipment line."

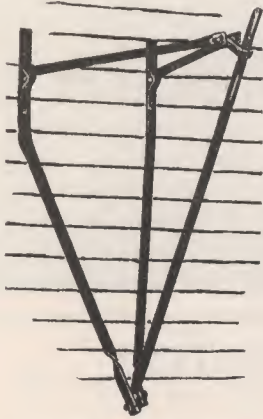
Stop building expensive and unsafe wooden scaffolds for every job. Reliable Steel Scaffold Brackets make a rigid scaffold—and they stay up until taken down. They save you all kinds of time, lumber and money. Give them a trial.

We also make the old style "Hook Type" Bracket for those who prefer it. You can order either style C. O. D. and see them before you pay a cent.

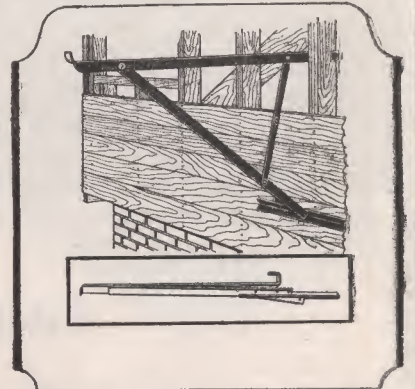
Reliable Brackets can be used on frame, brick or stucco buildings. Write for our catalog and price list.

Elite Manufacturing Company
Dept. A-11 ASHLAND, OHIO

Reliable Scaffold Brackets
No holes to plug after they are removed

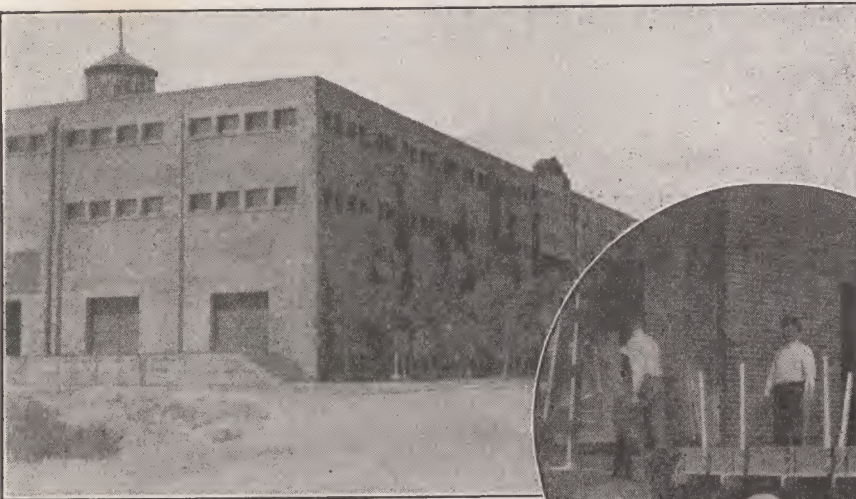


Reliable Scaffold Bracket
Open and Folded



Hook Type Bracket—Open and Folded

General Motors Truck



This GMC has been in Service Since 1915 and is still Performing for the El Paso Sash and Door Company, of El Paso, Texas



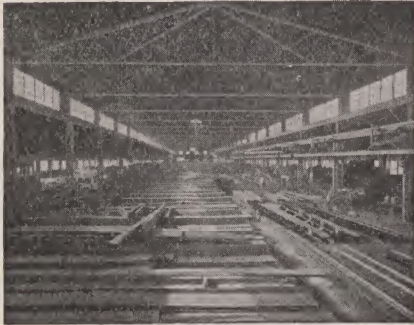
BUILDING Supply Companies that use GMC's speak in highest terms of the reliability and low cost of operation of these strong, sturdy trucks. Not only do these trucks possess a number of exclusive, long wanted features of construction, but they are built to carry loads in excess of their rated capacity.

GENERAL MOTORS TRUCK COMPANY
Division of General Motors Corporation
PONTIAC, MICHIGAN

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Three Sources of "International Service"

**Steel Mill Buildings
Truscon Steel Sash
Trusses and Girders
Steel Highway Bridges**



INTERIOR VIEW OF STEEL PLANT

**Designs and Estimates of
Store Fronts and Garages
Free of Charge**



MAIN OFFICE AND ENGINEERING
DEPARTMENT

**Modern Store Fronts
Complete Public Garages
Elevators, Skylights
Steel Ceilings, Glass**



INTERIOR VIEW OF WOODWORKING
PLANT

QUALITY

SERVICE

COURTESY

International Steel & Iron Co.

Address Dept. 18

Evansville, Indiana

Write for "Garage Illustrations" showing at least 50 modern buildings designed by us

"and It's Easy to Install"

ONE of our Dealers happened to be at the Factory recently and had occasion to discuss the FarQuar System with a visitor. Here are some of his comments:—

"The FarQuar is the easiest to assemble, and most simple to operate, of any furnace I have ever seen. Dozens of times I have surprised my customers by the ease and speed with which I erected a FarQuar.

"Then there is the matter of inspection and convenience. Every part of a FarQuar is easily accessible from the front. There are no obscure winding flues and the ashes can be removed without the usual dirt and annoyance. Repairs are rarely needed, but when they are, they can be made quickly and easily without tearing down the equipment.

"And the operation of the Automatic Control is very simple. Once installed it needs no attention, yet it effectively regulates the fire and maintains a uniform temperature in all kinds of weather. You'll find FarQuar users enthusiastic over this automatic control.

"It is so easy to demonstrate the superior advantage of FarQuar features that I am able to sell the FarQuar the year round. Folks are beginning to want FarQuar results for they realize no other furnace can give them. That is one reason why the FarQuar is the only heating system I would sell."

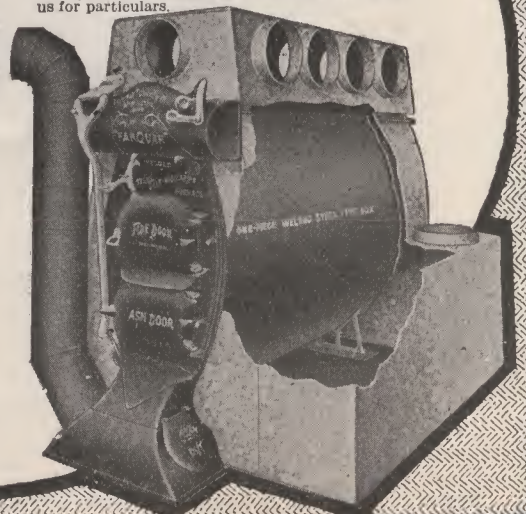
The best part of it all is, the Dealer above quoted not only sells and installs a large number of FarQuar Systems, but he also uses one in his own home. And yet, he told only a small part of the FarQuar story. You will find the remainder intensely interesting. Ask for booklet of complete information on house heating. It's Free.

Dealers and Distributors wanted

The Farquhar Furnace Company
311 FarQuar Bldg. Wilmington, Ohio

**THE
FARQUAR
HEATING AND
VENTILATING
SYSTEM**

A MONEY-MAKING OPPORTUNITY
FarQuar Advertising is awakening people to the need for better heating methods in the home. Competent and reliable men can make good money as exclusive FarQuar Distributors. Write us for particulars.



Choice Territory

Now Available

To Live Weatherstrip Men

WHY be content to handle an ordinary weatherstrip that you must sell in competition with every other strip on the market? You can sell

Burrowes Metal Weatherstrips

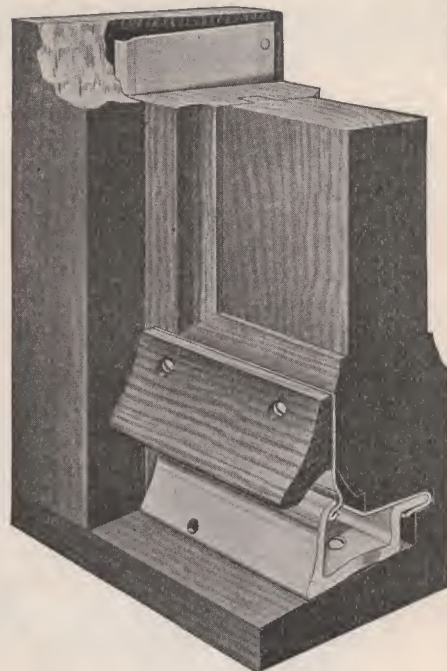
more easily, make more money and build up a business of your own that will become more profitable every year.

Burrowes Improved Weatherstrips are admitted to be the finest weatherstrips made. They have features which place them above "price cutting competition. They are strong favorites with architects and contractors. This is your chance to make real money.

*In Writing for Information Please Mention
Territory Desired*

Burrowes Weatherstrip Co.

1930 South 52nd Avenue
Chicago Illinois



Builders!

**A Hardin-Lavin Hot Water Heating Plant
Adds Five Times Its Cost to the Sales Price of
Your Building. Buy Direct. Save Half.**

Builders in every state in the Union are now buying our heating plants because they find them built better, more economical in fuel consumption, more satisfactory to home buyers or tenants, and much easier to install. Hardin-Lavin Systems cost less because of our great Volume and direct selling methods. Every plant guaranteed.

Factory Fitted — Free Installing Plans

Send us a rough sketch or floor-plan blue-print or, just tell us your needs and our practical service department will show you the simplest, most economical, and most up-to-date installing method. This service is FREE. When you deal with us you save the high cost of unnecessary material, expensive labor, waste, work, and time. You can add much to your profit and prestige by installing Hardin-Lavin Heating Plants in houses that you build.

Write for Free Book on Heating Plants

Our new book, "HEALTHFUL HEATING" just off the press, illustrates and describes our latest systems. Copy sent FREE on request. Write for yours TODAY.

50 Years and Million Dollar Plants Back Up Our Guarantee

We are headquarters for Hot Water Heating Plants, Plumbing Outfits, and Labor Saving and Money Saving materials and supplies of all description. Our complete Catalog, The Handyman Book Encyclopedia of Plumbing and Heating Plans gives trade secrets, etc. Sent upon receipt of 25 cents. See our ad on pages 178-216

HARDIN-LAVIN COMPANY

4522-34 S. Cottage Grove Avenue CHICAGO, ILLINOIS



Hardin-Lavin Co.
4522-34 S. Cottage Grove
Ave., Chicago, Illinois

Gentlemen: Please send me
FREE your new book of Heating
Plans and Outfits entitled, "Healthful
Heating."

☐ (Please check here and enclose stamps for
Handy Man Book if it is also desired.)

Name.....

Address.....

CONTRACTORS AND BUILDERS — INSTALL A HARDIN-LAVIN PIPELESS FURNACE IN YOUR NEXT BUILDING

Our Pipeless Furnaces Are Superior Because —

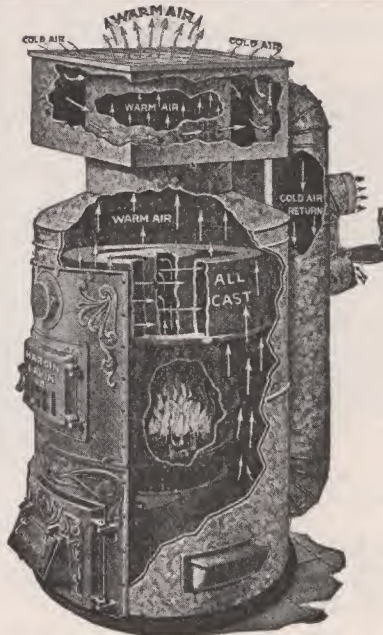
The interior and large front are all heavy cast.

Long circular fire travel saves fuel.

Improved air cleaning humidifier eliminates dust.

Reinforced dumping grates, burns hard coal, soft coal or wood economically.

Has adjustable throat to fit any basement.



Our Improved Pipeless Furnaces "Beat Them All"

Other furnaces take the cold air down inside an outer casing. Notice we take the cold air down through two large separate cold air ducts outside of casing at rear of furnace. This distinctly better method of cold air circulation prevents back draft, warped casings, dust in your home, etc.

SPECIAL ATTRACTIVE PRICES TO BUILDERS

*Send today for our pipe and
Pipeless Furnace Catalog*

\$500,000 PLANTS BEHIND OUR GUARANTEE

HARDIN-LAVIN CO. 50 Years at 4522-34 F Cottage Grove Ave., CHICAGO

SEE OUR ADV. ON PAGES 177-216

The Cold Breath of Winter

Cuts Icing Costs When HERRICK Outside Icing Is Installed in Homes

Aside from the fact that

HERRICK OUTSIDE ICING REFRIGERATORS

do away with inconvenience to the housewife and prevent kitchen floors from being tracked with muddy feet and dripping ice; they save ice bills during the cool months by permitting cold air to pass from the outdoors into the ice compartment, serving the same purpose as ice, but with no cost whatever to the home owner.

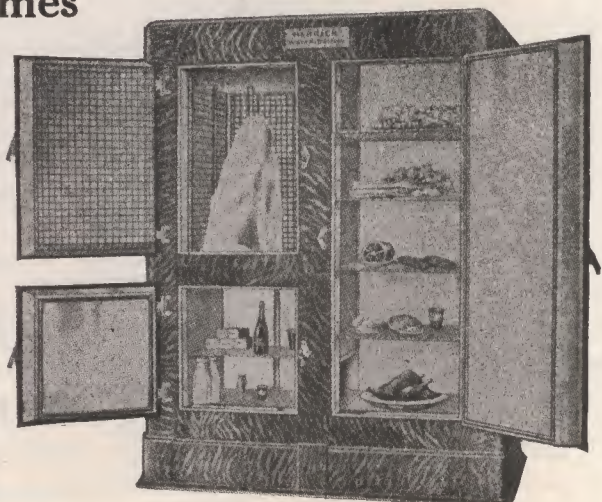
These big advantages over old methods of icing are reasons why every home owner should demand HERRICK.

MAIL THIS COUPON FOR FREE BLUE PRINTS

HERRICK REFRIGERATOR CO.,
105 River Street, Waterloo, Iowa

Please send me free set of Blue Prints showing dimensions and various openings necessary for Herrick Outside Icing.

Name
Street No.
City State



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



A good floor to lay — A good profit to make

Do you have the feeling of double security when you recommend a floor to your client—the feeling that you are both recommending an excellent floor and assuring yourself of a good profit?

You will always have this feeling when you recommend and install MagneStone Flooring. For MagneStone makes a floor which is sanitary, attractive, comfortable, noiseless, easy to clean, non-slippery and warm. Recommend it for your next job. Your profit is assured.

You can lay

MagneStone Flooring in kitchens and bathrooms, and in hotels, schools, stores, factories and hospitals—the larger the job, the greater your profits. Laid one-half inch thick over new or old wood or concrete foundation. Trowel finished like cement. Eleven colors to choose from.

Write now for our *MagneStone Flooring Proposition and Samples*—no obligation.

AMERICAN MAGNESTONE CORPORATION DIVISION OF FLOORS

Also manufacturers of MagneStone Quality Stucco, Mortar Colors and Plaster.

GENERAL OFFICES: SPRINGFIELD, ILLINOIS

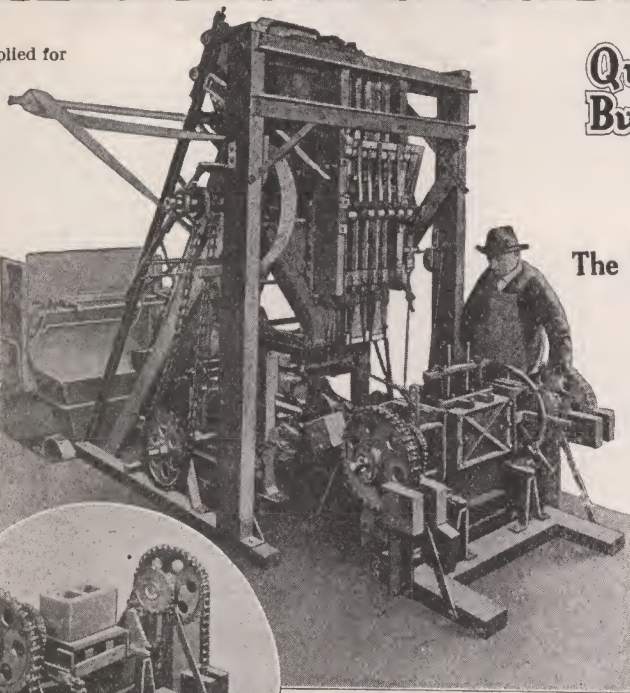
Plants and Sales Offices:

Ottawa, Ill.; Springfield, Ill.; Kansas City, Mo.; New York City; Detroit, Mich.; Minneapolis, Minn.; Chicago, Ill.

MAGNESTONE

COMPOSITION FLOORING

Pat. applied for



Quality Blocks are Important But-to Make Money-Produce Them Quickly

The *Ideal* Roll-Over Stripper

Trade-Mark

gives you a production of 3 or more superior blocks a minute, for the Stripper has the speed of an automatic with the simplicity of a power machine.

All blocks are densely tamped and all sides troweled. You can make up 8, 10 or 12 inch block or two 5x8x12 inch tile in the same mold box and they are delivered onto one size pallet. Also adapted to making all sizes of tile with the same pallets as in making blocks.

The machine does *not* have to be stopped to wait for the off-bearer to carry away the product and put the empty pallets in.

WRITE US TODAY TO SEND
CONVINCING FACTS

The Ideal Concrete Machinery Co.

5014 Spring Grove Ave.

Cincinnati, Ohio

This shows delivery table with
block ready for off-bearing



Genuine "BANGOR" Slate Roofs

*Rich BLUE-GRAY SLATE
of the highest quality*

"Genuine Bangor" Slate has been produced in the famous quarries at Bangor, Pennsylvania, for over sixty years and hundreds of thousands of roofs testify to their quality—not a single instance is known where "Genuine Bangor" Slate has gone wrong.

"Genuine Bangor" Slate is sold under two classifications—"CLEAR" and "SEMI-CLEAR"—the quality is the same—the appearance on the roof is identical, *but*, the cost of Semi-Clear is very low.

"Genuine Bangor" Semi-Clear Slate is specified by the United States Government on numerous structures—it is now being applied on the U. S. Veterans' Hospital buildings at various points and other projects of a similar character.

"Genuine Bangor" Slate is world-renowned and is constantly shipped to England, Ireland, Australia, New Zealand and even to Wales, the greatest slate-producing country in the world.

"Genuine Bangor" Slate is quarried on the "Genuine Bangor" vein by the following companies:

| | |
|------------------------------|----------------------------------|
| North Bangor Slate Company | Bangor-Vein Slate Company |
| Old Bangor Slate Company | E. Bangor Consolidated Slate Co. |
| Bangor Central Slate Company | Bangor Washington Slate Company |
| Bangor Excelsior Slate Co. | |

NOTE: "Genuine Bangor" Slate needs no further recommendation than its name. To protect architects and users against the substitution of inferior grades, the producers have formed the "Bangor Slate Association," and with all shipments of "Genuine Bangor" Slate is furnished a certificate of the Association. It is safe to assume that any slate offered under any name hyphenated with Bangor, such as West Bangor, Albion-Bangor, or any other prefix to the word Bangor except "Genuine Bangor" is a substitution of much inferior material.

The entire production of the above named companies is sold exclusively by

V **VENDOR SLATE CO.**
INCORPORATED
EASTON, PENNSYLVANIA **V**

New York Office, 103 Park Ave.
Chicago Office, Marquette Bldg.

500 Atlas Building
Columbus (Ohio) Office

6600 Hamilton Ave.
Pittsburgh Warehouse

1548 S. Van Deventer Ave.
St. Louis Warehouse

American Industrial Bldg.
Hartford (Conn.) Office

and at Detroit, Kansas City, Los Angeles
Cincinnati, Waco (Texas) and London, England

Make Selling Easier



Insure Real Comfort with Automatic Heat Control



To the man buying a house no one feature makes a stronger appeal than prospective comfort. That's what everyone wants to see in his home.

Today almost everybody realizes that even a fair degree of comfort is impossible without scientifically correct heating. This is impossible without automatic heat control with the Minneapolis Heat Regulator.

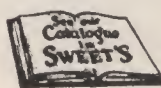
The "Minneapolis" in the new homes you build means easier, quicker selling at better prices. You can appeal to the most prosperous buyer because you are offering the much desired comfort. So the additional 1% cost of installing the "Minneapolis" in even the most modest of homes is more than repaid.

Practically every prospective home buyer knows about the "Minneapolis"—how it takes complete charge of the heating plant, speeding and checking the fire to maintain even healthful day and night temperatures at the levels the home owner desires: how it absolutely prevents over heating and under heating, saving 1-5 to 1-3 of fuel. Big "Minneapolis" national advertising has created an active demand for this equipment. In fact, the "Minneapolis" indexes a house as strictly modern.

The "Minneapolis" is known everywhere as the dependable automatic heat control equipment. The first of its kind, it is also first in perfection and development, the recognized leader.

Submitting complete plans with such modern refinements as the "Minneapolis" gives you a better chance to sell your prospects from the plans of the homes you build or sell.

We will be glad to supply you with detailed information about the "Minneapolis" and explain in detail how you can get greater returns from the houses you handle by including it. The "Minneapolis" is quickly and easily installed on any type of heating plant, burning any kind of fuel. Write us today.



Minneapolis Heat Regulator Co.

402 E. 28th St., 4th Ave. So.

MINNEAPOLIS

MINNESOTA

The "MINNEAPOLIS"
HEAT REGULATOR
"The Heart of the Heating Plant"

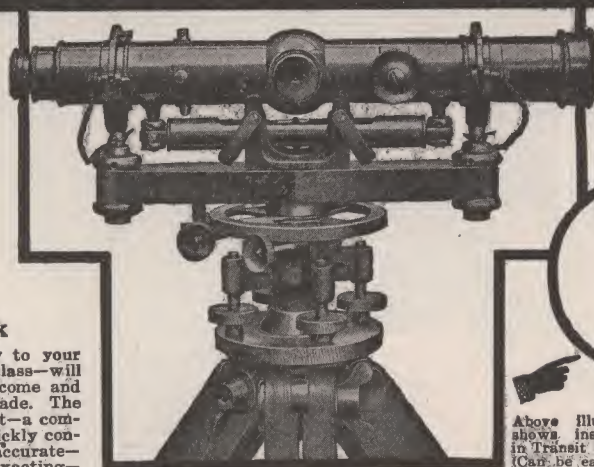
Level and Plumb With Your Own Instrument

\$5⁰⁰

BRINGS IT
TO YOU

Better, Quicker Work

This instrument will add immeasurably to your efficiency and put you in the big builder class—will do more to increase your business, income and prestige than any investment you ever made. The Aloe Convertible Level is the world's best—a combination of both level and transit and quickly converted to the use of either. Absolutely accurate—satisfies the requirements of the most exacting—yet so simple that anyone can use it.



FREE TRIAL



Above illustration shows instrument in Transit position. (Can be easily and quickly converted.)

FREE Write for this Book



Aloe Convertible Level and Transit Combined

You Learn to Use It In An Hour

No technical knowledge necessary. No previous experience needed. With our simple and complete instruction book, included free with every level, you can immediately put the instrument to work. It is a level and transit combined—takes sights either above or below the horizontal. You can use it for leveling foundations, walls, piers, streets, walks or curbs—run straight lines for ditches or drains—boundary lines for fences or trees—surveying lots and fields—plumbing walls, shafts, trestles, posts and pillars.

Easy Monthly Payments

Just \$5.00 brings it to you—for a free trial. If perfectly satisfied, pay the balance in small monthly payments. The instrument will be sent at once and from the first day it will be working for you—paying for itself by saving you the cost of borrowing an instrument or the fees you have been paying other men for this work.

Write for Free Book

Our free book—"Be A Bigger Builder"—tells you how to increase your income—how to get the profitable jobs and become a bigger man in your community. Write for this book today.

MAIL COUPON TODAY

A. S. ALOE CO., 621 Olive St., St. Louis, Mo.

Without obligation, send me your FREE book, "Be A Bigger Builder". Also full particulars about the Aloe Convertible Level and details of your easy payment plan.

Name _____

Address _____

A. S. ALOE CO., 621 Olive St., St. Louis, Mo.

Perfect Sidewalk Lights



For the past five years we have been building sidewalk lights that stay flat, *do not leak*, and that have *no broken, flayed or chipped glass*. We have found the causes of glass breakage—and have adopted the materials which overcome this fault.

FIRST IS THE GLASS. Every piece of glass is absolutely free of all internal stresses and invisible cracks.

A drop of sparkling water looks clear to the naked eye; under the microscope it shows full of "wrigglers" and impurities. So with a piece of annealed sidewalk glass—only the polariscope shows up its faults. To test a few glasses out of each lot is not enough—every piece must be tested and only perfect

glasses accepted. All our glass is polariscope tested Lazalite glass, as made by the Jeannette Glass Co.

To install sidewalk lights that are perfect—and stay perfect—you must select one of the 3 Way-Simplex constructions. Ask for Bulletin SS giving full details.

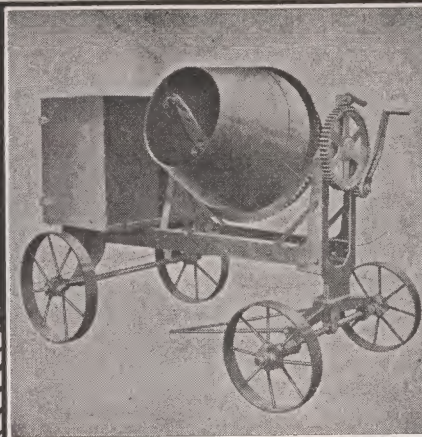
American 3 Way-Luxfer Prism Company

Daylight Engineers

1307 S. 55th Street
CICERO, ILLINOIS

358-368 Webster Avenue
LONG ISLAND CITY, N. Y.

STEWART CONCRETE MIXERS



BUILT
ON THE
SQUARE

SOLD
ON THE
SQUARE

WRITE!

NEW
1923
MODELS

For Your Copy of the
New 1923 Stewart
Concrete Mixer Catalog.

It's Ready

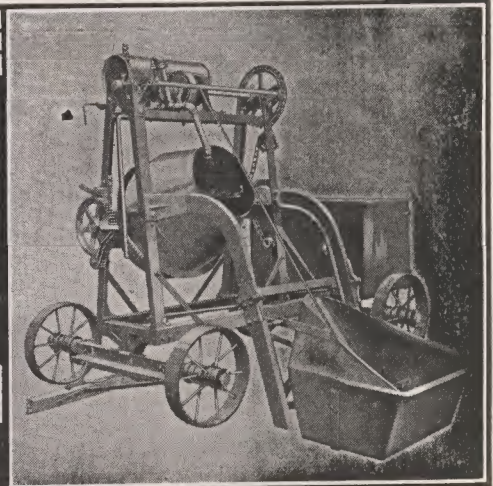
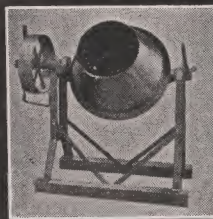
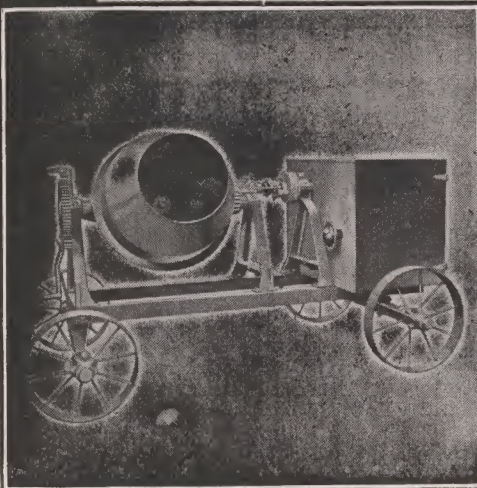
NEW
1923
PRICES

STEWART MANUFACTURING CO.

157 Rath Street

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Sixty Thousand Editors

would make a great building paper, wouldn't they?

But that is what the American Builder wants—every reader to help us make the paper interesting by sending in contributions about un-

usual building problems and how they overcame them.

Every man excels in some one thing. By telling our experiences we can all excel in more things.

AMERICAN BUILDER

1827 Prairie Ave.

CHICAGO

Design 240
Modern Doric

UNION

METAL PORCH COLUMNS

Lifetime Columns for Porches and Remodeling

Union Metal Columns free the contractor and owner from splitting and rotting so common with wood columns. Reasonable prices in all sizes 8" to 42" diameters.

Union Metal Columns give new beauty to old buildings. Thousands are supplied to contractors every year for remodeling and replacement of rotted columns.

Weatherproof, fireproof and everlasting, they add hundreds of dollars to the value of any home.

Every contractor will want our handsome book—"Colonial Entrances."

The UNION METAL MFG. Co.
CANTON, OHIO

"EVERHOT"

Branding Iron



***Stops
Tool
Losses***

Brand your name or trade mark on shovels, scoops, hammers, sawhorses and other building equipment. It costs but a few cents and will save hundreds of dollars worth of expensive tools. It is easily and quickly done.

**Economical
Efficient
Convenient**

The "EVERHOT" is also a soldering iron and blow torch giving an intense effective heat at a suprisingly low cost.

Because of its safety, light weight, ease and simplicity of operation any of your workmen can operate it.

It is surprising how many valuable uses you can find for the "EVERHOT" in factory, shop and on building operations. Write for full descriptive circular and prices.

Everhot Manufacturing Co.

Dept. A

Maywood, Ill.



AN AGENCY IS PROFITABLE, INVESTIGATE NOW.

DIAMOND

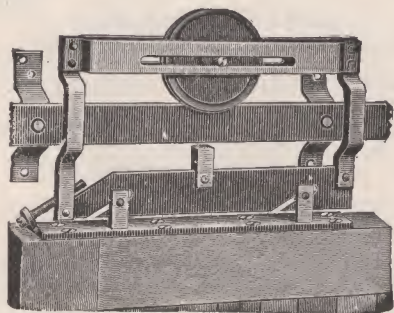
PRACTICAL THE METAL WEATHER DIAMOND WAY STRIPPING

A PERMANENT BUSINESS THE YEAR ROUND. DEMAND CREATED

EXCLUSIVE TERRITORY TO BUSINESS PRODUCERS

ADDRESS AT ONCE THE DIAMOND METAL WEATHER STRIP CO. COLUMBUS, OHIO.

Lane's Patent Standard STEEL PARLOR DOOR HANGER



The Lane Standard was the first Single Rail Steel Parlor Door Hanger on the market, and today excels all others in


STRENGTH, DURABILITY, SIMPLICITY and EASE OF MOVEMENT.

The ever increasing popularity of these goods is the best proof of their superiority.

Write for Catalog

LANE BROS. CO., POUGHKEEPSIE, N. Y.
Carroll Street

Make Money Laying



Everlasbestos Flooring

The Composition of Highest Quality

Not to be compared with ordinary materials.

Everlasbestos is a superior mixture of highest quality ingredients.

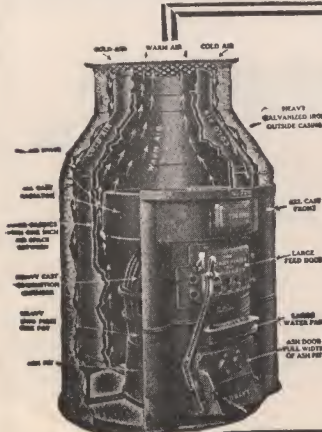
This mixture together with our carefully prepared instructions for laying insures the most satisfactory work possible.

Equally good over old floors or for new work. Choice of Buff, Red or Gray.

Mason contractors can make good profit installing these floors. Easy to sell, easy to lay.

Write for Catalog and Free Sample Today

Everlasbestos Flooring Co.
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Reliable For Warmth RYBOLT FURNACES

The mechanical and scientific correctness in design of RYBOLT FURNACES assures the user of maximum furnace efficiency. Whether your need is of a pipe or pipeless furnace, you will find a correct model in the RYBOLT line.

DEALERS

Get in touch with us today to be ready for the increased demand for immediate delivery. We are ready, are you?

RYBOLT HEATER CO., Ashland, O.
CINCINNATI INDIANAPOLIS



The Original and Only



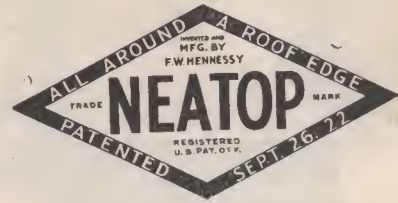
First Consideration of Finest Hotels

"White-Steel" products are found in the bathrooms of the world's finest hotels. Medicine Cabinets made of the world famous Henzin Metal—a rust resisting material—and permits the six coats of "White-Steel" enamel to stick for all time. Enamel will not check, peel, craze or discolor. Solid construction. Cabinet made of two pieces. First quality mirror plate. Polished plate glass shelves. The ideal cabinet for homes and apartments. "White-Steel" is the owners only assurance of permanent installation.

Medicine Cabinets for the Home

Contractors and Builders: Write for Details

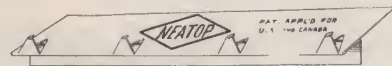
"WHITE-STEEL" SANITARY FURNITURE CO.
Dept. 211
GRAND RAPIDS, MICHIGAN



Neatop Does It Keep Your Roof Edge Clean and Straight

Water can not back in and ice can not form where Neatop is used. No gale can raise the edge of roof covering when the vise-like metal fingers of Neatop are used.

Patented in U. S. and Canada



F. W. HENNESSY

P. O. Box 531

PROVIDENCE, R. I.



Compound Radiator Furnace

Bovee's Old Reliable Furnaces

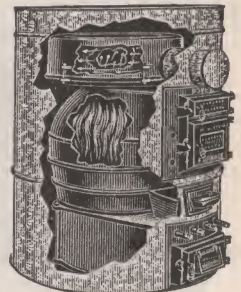
28 YEARS ON THE MARKET

Absolutely Reliable, Durable and Economical

Manufactured in all sizes having 20-inch to 36-inch Fire Pots. Combustion chamber more than double the size of the average furnace

SAVES 40% OF FUEL

SPECIAL TO CONTRACTORS



Bovee's Cast Iron Furnace



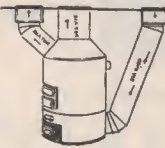
1
For regular piping



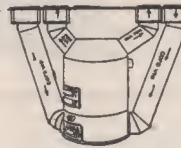
2
Pipeless



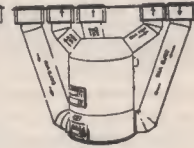
3
Central Heating



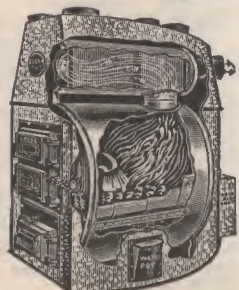
4
Central Heating with run to bath



5
Central Heating two outlets



6
Three runs floor or wall registers



Bovee's Horizontal Wood and Coal Furnace

STOCK STYLES FITTINGS

We carry in stock for all sizes and styles of Bovee Furnaces, all of the above styles of fittings. With our illustrated Price List a contractor can tell in two minutes the exact cost of the entire Heating Plant for any ordinary house or bungalow, and order simply by number.

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Bovee's Pipeless Furnace



V & B Supersteel Hammers are equipped with Vaughan's Expansion Wedge—positive insurance of a tight handle and head. Tool heads are drop forged from a solid bar of Vaughan's Supersteel. Ebony Finished and trade-marked V & B in etched gold. A fine tool that will appeal to the man who takes pride in his work.

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Hold doors firmly open or closed.

Cannot injure floors.

Operated by foot.

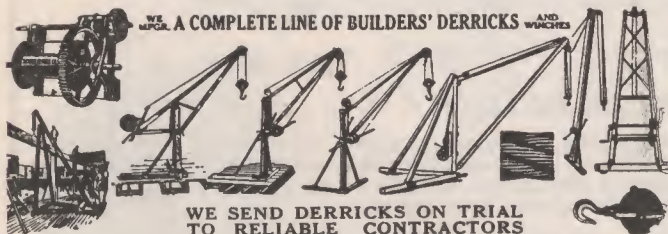
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Our garage door holders should be installed on every garage.

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WE SEND DERRICKS ON TRIAL
TO RELIABLE CONTRACTORS

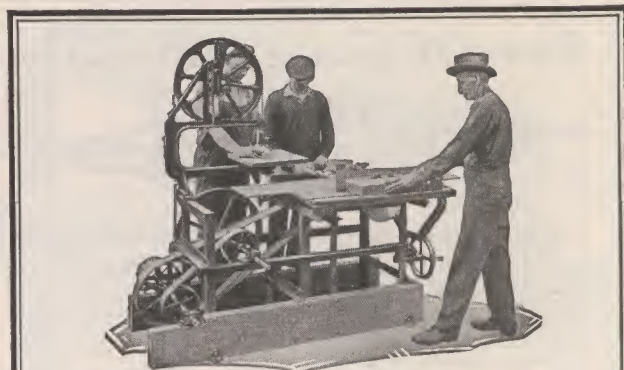
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Write for circular No. 2 with illustrations, descriptions and best prices on our complete line. Sasgen Builders' Derricks are built of the best Crucible Steel and Malleable Iron Fittings, which makes them light, strong, safe and durable. The derricks will please you, and probably more than pay for themselves on the first job. Get one on trial.

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Parks "Four-in-One"

Circular Rip and
Crosscut Saw
Band Saw
12 in. Jointer
Boring Machine

\$225

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A PARKS "Four-in-One" speeds up the four most important woodworking operations—sawing, band-sawing, planing, and boring. The one-man shop with a "Four-in-One" is as productive as a small factory of hand-carpenters.

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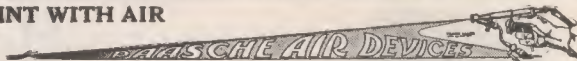
Write for complete catalog of Parks Woodworking Machinery.

The Parks Ball Bearing Machine Company
Fergus Street & C. H. & D. R. R. Cincinnati, O.
Canadian Factory: 200 Notre Dame East, Montreal, Can.

8-23

PARKS WOODWORKING MACHINES

PAINT WITH AIR



How Many Jobs Like This in Your Town Can You Do?

If you use a PAASCHE
Painting Machine, not
one of them need be
lost



HOW
QUICK
COULD YOU
PAINT IT?
—WHAT WOULD
YOU MAKE



This is the
real way to
paint. You
simply can't meet
NEW conditions
by using OLD methods
which others are quitting

Don't Be a Slave to Hand Brush!

What will you do, with more work than you can handle? Let the other fellow have it? That's like throwing away your money. Don't do it!

PAASCHE PAINTING MACHINES

Mean SIX JOBS—SIX PROFITS—Instead of ONE

For They Do BETTER—QUICKER—CHEAPER WORK

The AIRWAY forces the paint in cracks, crevices where the hand brush never touches. Easier work, too!

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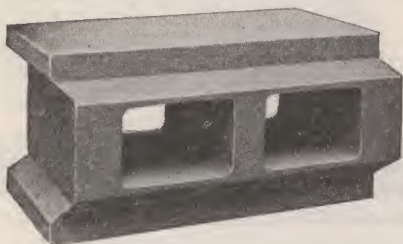
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That's why Fuller & Johnson Easy-to-
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They combine economy with strength, dur-
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You'll find in it just the engine you've been looking for.*

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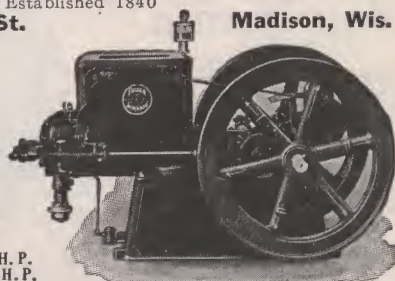
Established 1840

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Madison, Wis.



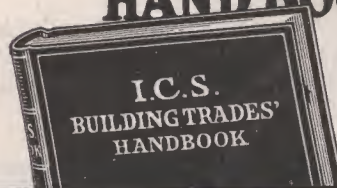
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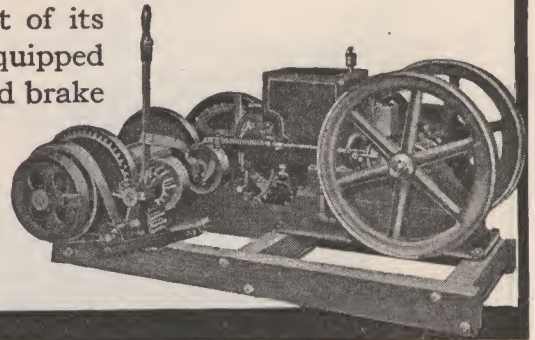
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Wonder Hoists

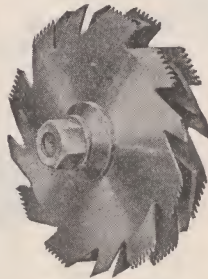
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The saw that makes intricate cutting and grooving simple.

This saw, developed from our own patents, consists of two outside cutters and of sufficient quantity of inside ones to perform the required cut. The outside cutters can be used singly or in pairs as required.

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Makers of Better Saws for More Than 50 Years

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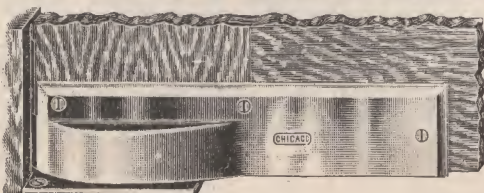
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No other slate concern has at its disposal the enormous stock and production as that which we are able to offer our customers. Any size or grade can be loaded as soon as a car is placed at the quarry siding.

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Appearance — Economy — Durability The "AJAX"

In the "Ajax" we offer a Floor Spring Hinge with Ball Bearings at top of the Hinge, away from dust and moisture. Alignment Adjustment that is easily accessible. Roller Bearings for the piston, to overcome friction. Durability, Economy and Appearance, backed by our REPUTATION.

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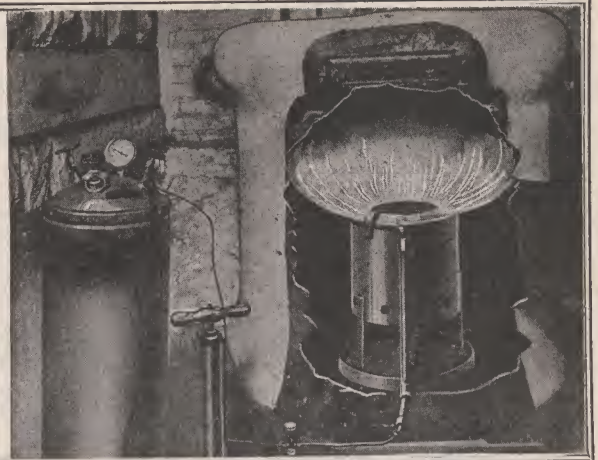
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This burner outfit can easily be moved from one job to another.

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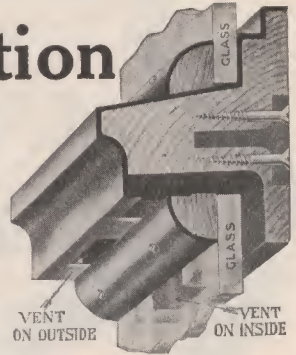
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Without Dirt or Hindrance

The Coulson Way of properly ventilating precludes every possibility of the transom bars or sills from clogging or being nuisances for admitting dust and dirt.



Profit and Prestige await the Contractor and Architect who recommend Coulson Store Front Construction.

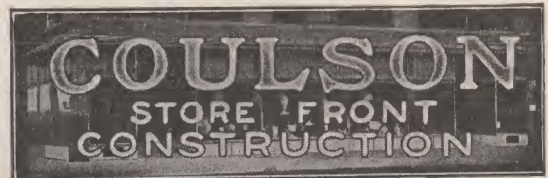
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Every Builder

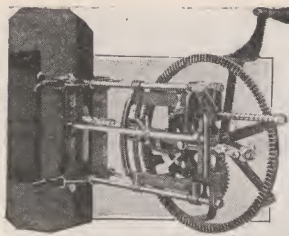
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"Your Mortiser Gives Great Service"—one user said

Another wrote—"Would not be without it. Paid for itself on one job." Still another writes—"Put in 30 locks in 6 hours (total time). It is a money maker for me." Hundreds more like them. Surprises everyone who uses it. Turns loss into profits.

The Champion Mortiser

Cuts a Perfect Mortise in a Minute or Two

Will cut 100 to 120 perfect mortises per day. Saves 80% of your mortising cost—turns it into profits. Hundreds of carpenters, cabinet makers and contractors are using it. Makes mortising easy. Works perfectly in any kind of wood—hard, soft, cross-grained, end wood or through dowel pins. Results are always the same—a perfect mortise. Cuts a round hole or 6" slot. Use: $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ " bits. Special bits up to $1\frac{1}{4}$ ". Also, special base for wide stock furnished on request.

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For everyone
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building

Shows the
advantages
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SLATE
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NO
OTHER
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SO USEFUL

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Roofing,
floors, walks, paving,
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Casements
Are Bait That
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Casement windows are the thing these days. Their attractiveness has sold many a house. Put them in yours. Equip them with our operators which work from inside the screen. Made in three types and three prices. The one shown is the Bulldog type.

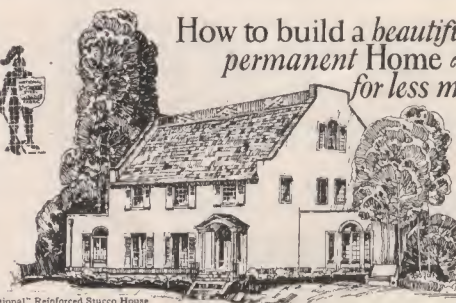
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How to build a beautiful,
permanent Home ~
for less money!

"National" Reinforced Stucco House
at Great Neck, Long Island, N. Y.
Oswald C. Hering and Douglas Fitch,
New York City, Architects



NATIONAL
Stucco-Plaster Reinforcement



To build a beautiful, permanent home
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1. It "back-plasters" itself.
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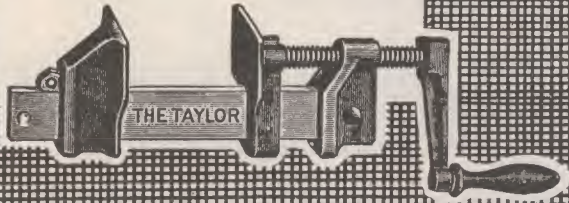
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The quickest and strongest clamps made. That's why they're the standard in U. S. Government Works and in such concerns as General Electric Co., Singer Sewing Machine Co., Victor Talking Machine Co., etc

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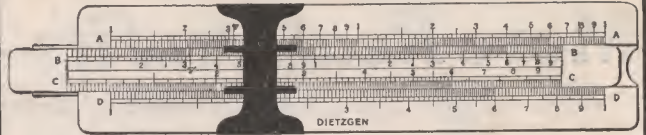
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Chapter 14, the most recent publication of the Structural Slate Company, is devoted to describing and illustrating, by actual size photographs, those surfaces and finishes of slate especially adapted to Architectural uses. It particularly brings out the many new and unusually decorative effects to be secured by use of the recently developed "Marbleized Finishes" which are illustrated by colored plates.

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Made in pipe and pipeless series and in various sizes, there is a Moncrief Furnace for every home.

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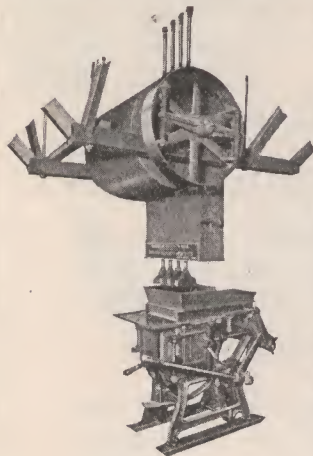
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ANCHOR

Complete Block, Brick

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ROCBOND EXTERIOR STUCCO

This superior stucco bonds on all building bases equally well and may be applied under all conditions regardless of time, season, or temperature. It is free from all ordinary stucco weakness.

If Rocbond is not represented in your community, a postal request will bring you full details of this easy-selling, profit-making, weather-resisting, non-cracking, easily-applied stucco. Address nearest plant.

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PLANTS

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Fig. 157
Note the construction of patent interlocking device used on Edwards Metal Shingles and Spanish Tile.



Fig. 347
Metal Spanish Tile for main part of roof.

Edwards "Queen Anne" Metal Shingles



RESIDENCE SENATOR GEO. S. NIXON, RENO, NEVADA.
EDWARDS METAL SPANISH TILE USED ON THIS BUILDING

EDWARDS Metal Spanish Tile

It is wonderful what a remarkable transformation takes place when an "Edwards" Metal roof is properly applied to a house—all of the charm of the Old Spanish Terra Cotta Roofing Tile is preserved, even to the color.

The house takes on a new lease of life. It seems a better place to live in. It helps put the stamp of progressiveness and thrift on a community. An Edwards Metal or Tile Roof is a real commercial asset and will bring a better return in rent or sale.

Edwards Metal Roofings made in various styles, to have the appearance of wood shingles tile slate or any other roofing effect, and none of these fine artistic effects will cost any more than a plain, commonplace roof.

All Edwards Metal Roofing is easy to lay—no big expense for skilled labor—storms and winds will not wrench it loose or make it a rattle-trap. It is lightning-proof and fire-proof—Reduces Insurance Rates.

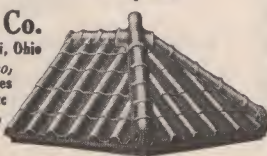
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The World's Largest Manufacturers of:
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ALMOST every job you do you need a Parks Mortiser and Borer. Handiest machine in the shop. A high-grade, guaranteed machine that will last your lifetime.

Makes mortises any size by repeating the cut, and up to three inches deep in one cut. Bed plate adjustable up and down and tilts to 45 degree angle.

Built for fast, accurate work. Adjustable to compensate for wear. Strong, rigid, electric-welded frame. 1 H. P. motor runs it.

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**Parks Hollow Chisel Mortiser
and Borer**

Guaranteed 10 years

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A Profitable Business OF YOUR OWN

A business that will keep you busy the year around. This HELM BRICK Machine will enable the right man to build up a real business at a moderate first cost.

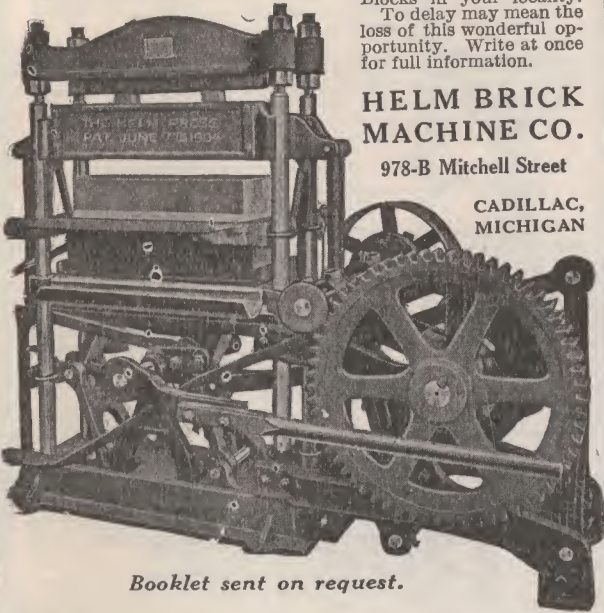
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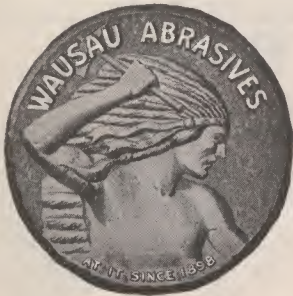
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WAUSAU, WISCONSIN

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The machine is simple, easily handled, made correctly, built to last—the result of years of experience in building this specialty.

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Only surfacing machine having roller sanding even with base-board from either side of machine, doing away with uneven work of edge roller attachment. Removes old varnish, paint, oil-soak, black, etc., rapidly, or cuts downwarped edges quickly. Four sizes—for the largest areas or the smallest rooms.

The Little Automatic Electric Surfacing Machine (on table) is a wonder for removing varnish from desk tops, counters, etc., or for new work, show windows, sills, doors, in corners, closets, or other confined spaces.

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Rapid Automatic

Ball Bearing Electric

The Improved Schlueter Floor Surfacing Machines

Variety and volume, perfect work, old floors as well as new ones; paint, varnish and oil soaked surfaces. Made in two styles and four sizes, these machines meet every requirement of making money on contracts. Has no levers to get out of order and surfaces right up to the base board with no extra attachments.

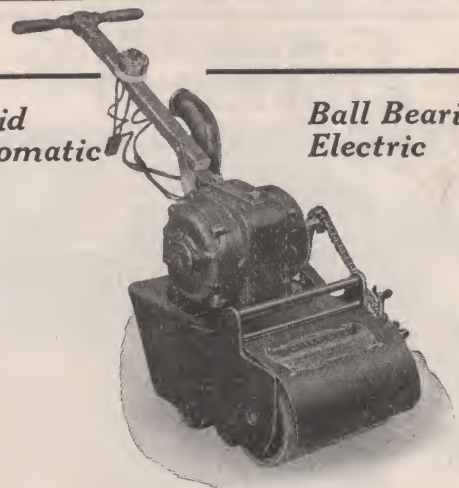
Let us give you information about our free trial offer and show you how you can make more money in less time.

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The American Sash Trimmer

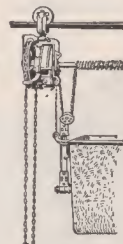
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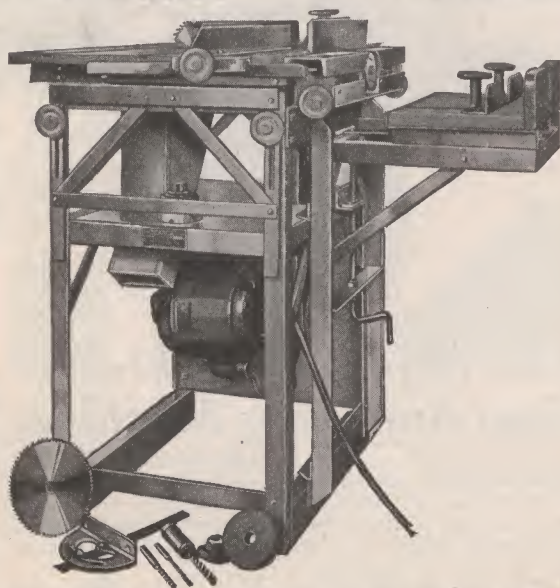
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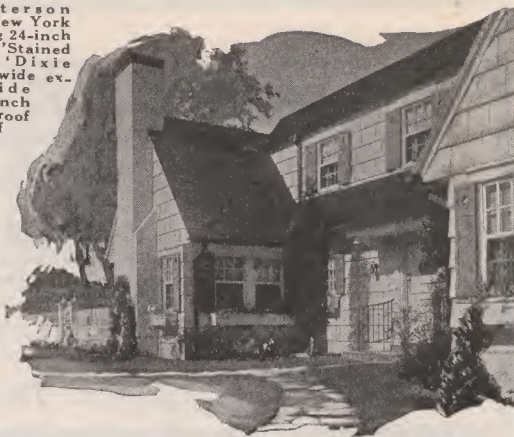


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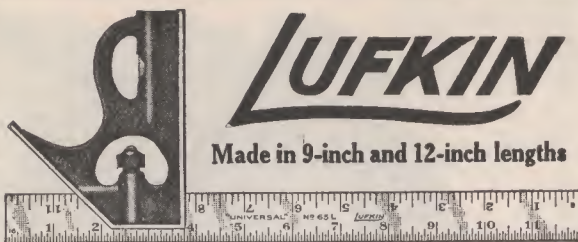
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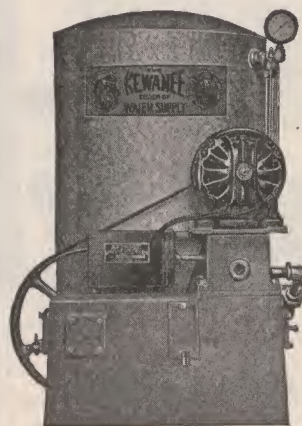
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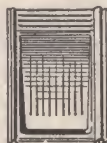
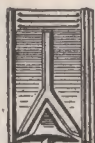
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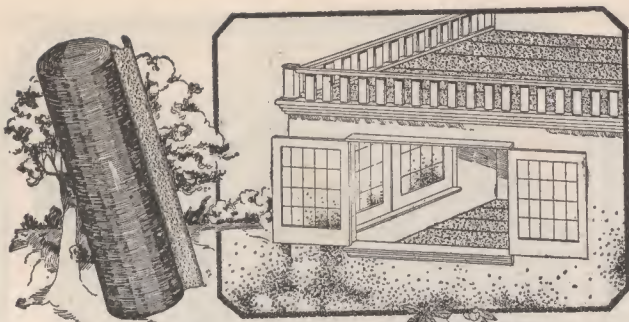
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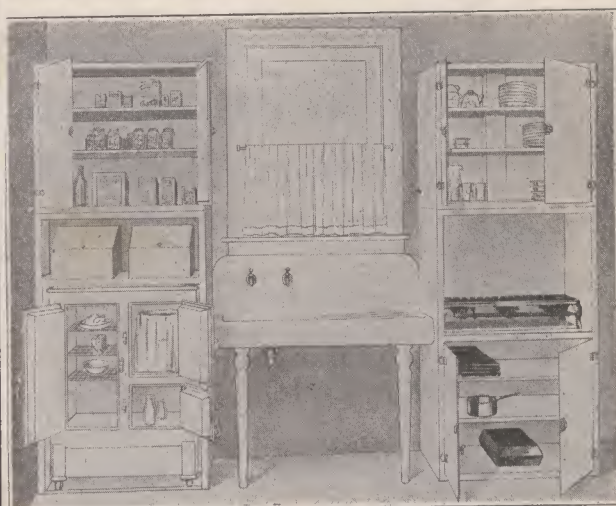
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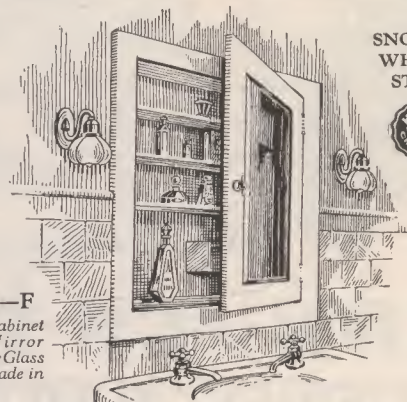
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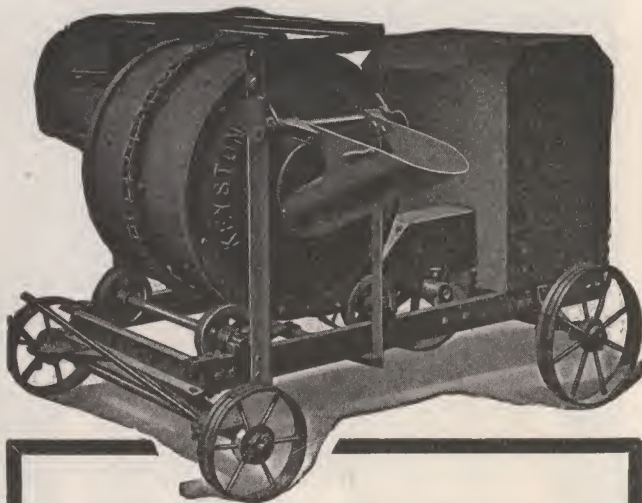
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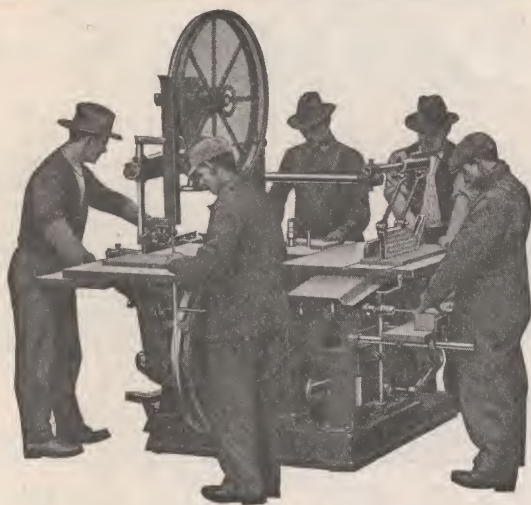
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Makers of the ONE-MAN tape

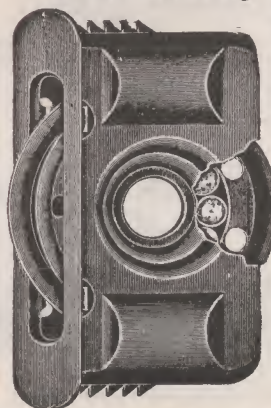
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The bearing contains eleven $\frac{1}{4}$ -inch solid steel balls running in lubricant, insuring a noiseless, easy running wheel under any load. This feature makes an excellent talking point for your window frames.

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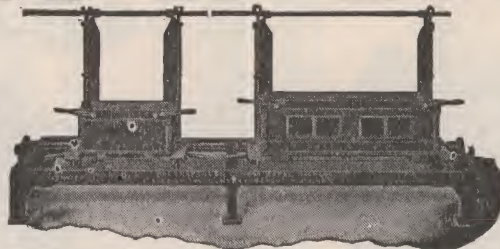
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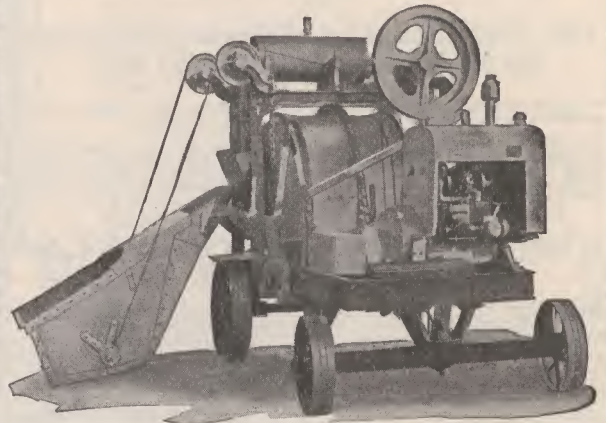
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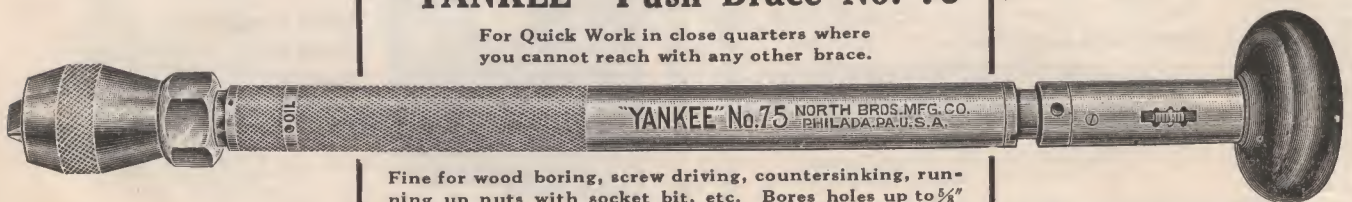
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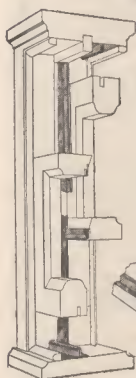
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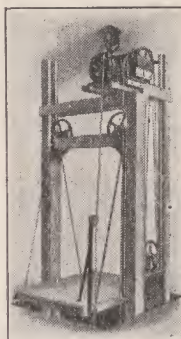
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2 PROFITS One on the Original Sale, another on the Installation

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Especially designed for warehouses, furniture and undertaking establishments, retail stores, hotels—in fact, every type of building.

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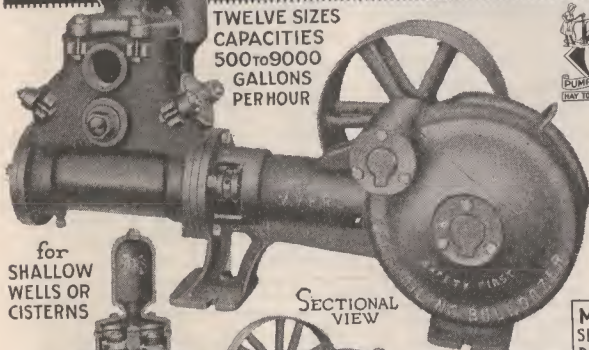
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PER HOUR



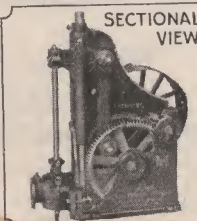
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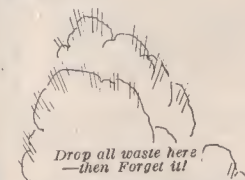
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Below is shown the convenient Kernerator hopper door, through which all waste matter is dropped to the brick combustion chamber in the basement. Dries the matter by forced draft, allowing quick combustion when lighted.

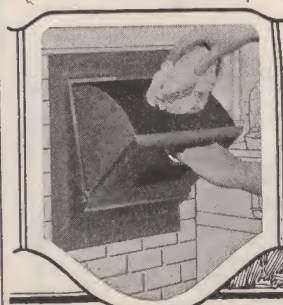


Drop all waste here
—then Forget it!

Built in the chimney, it handles all household refuse, reducing everything combustible to ashes and sterilizing all non-combustibles for easy removal with the ashes. Costs nothing to operate as the waste itself is all the fuel required.

For details and Page 2124, Sweet's (1922) or write—

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Built in the Chimney

Reg. U. S. Patent Office

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For the bottom of Inswinging Casement Windows

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2 Miles West of Chicago
City Limits

See Sweet's Catalogue, p. 1178



BARKER UNIVERSAL SAW

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\$25.00
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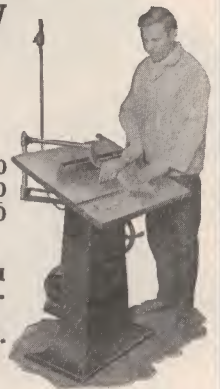
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R. L. BARKER & CO.

25 S. Clinton St.

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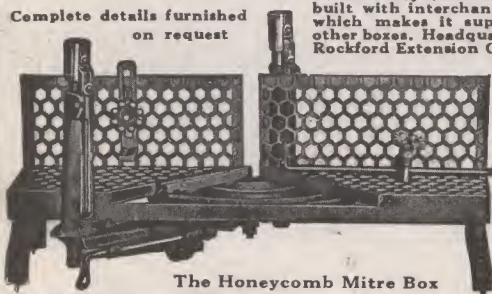


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The Honeycomb Mitre Box

Produces a perfect, smooth cut. Users pronounce it the best mitre cutting saw on the market. Write today for catalog!

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**No-Set
Saw**

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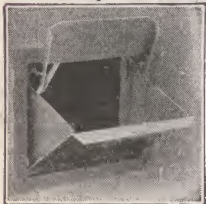
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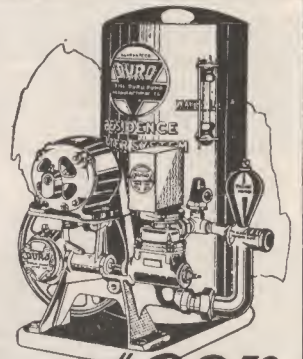
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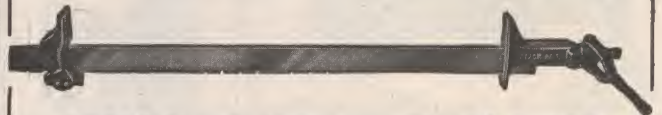
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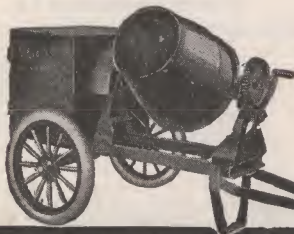
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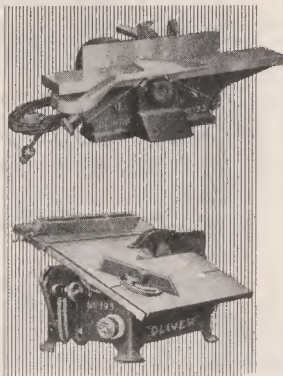


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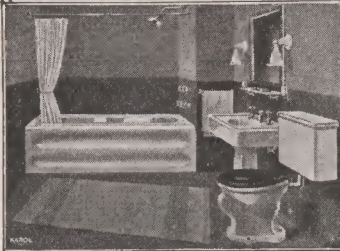
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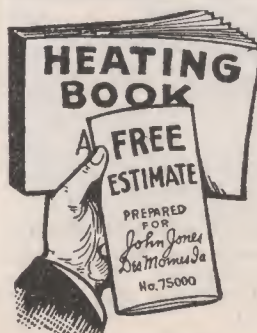
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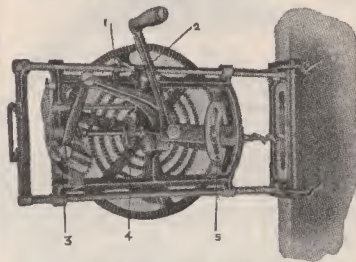


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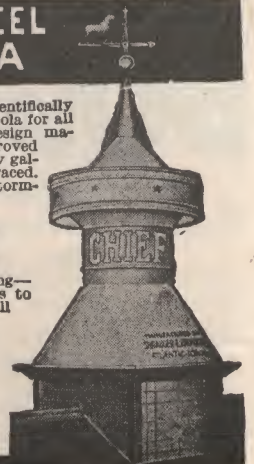
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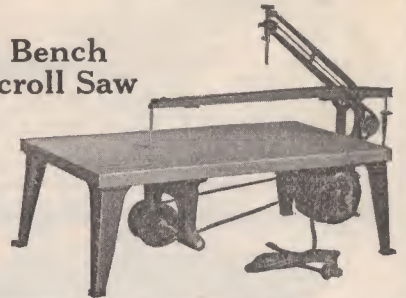


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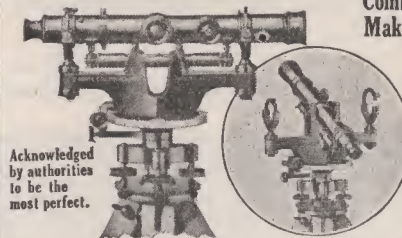
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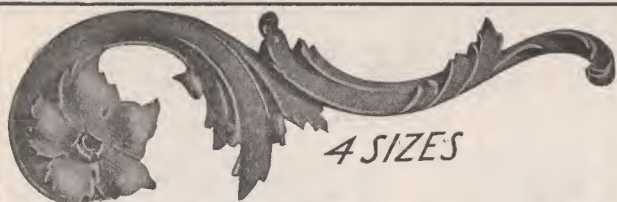
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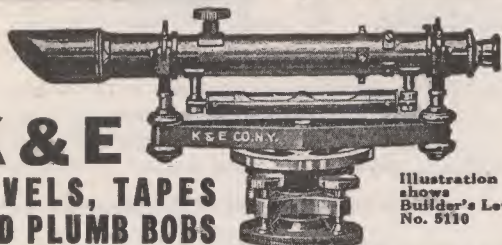


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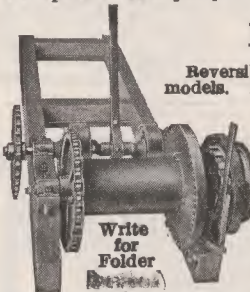
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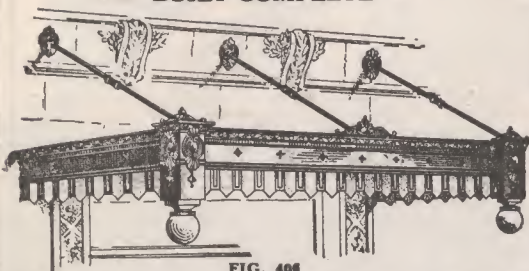


FIG. 406

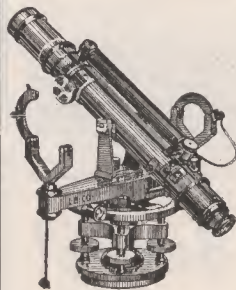
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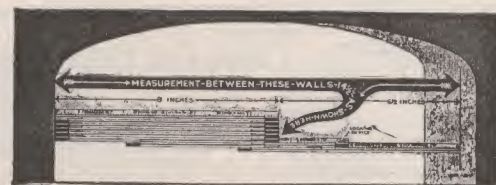
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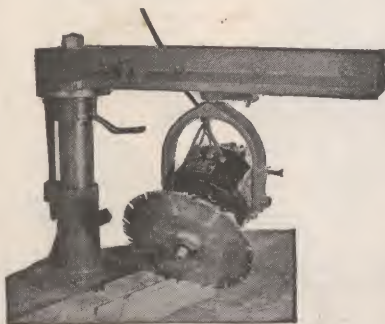
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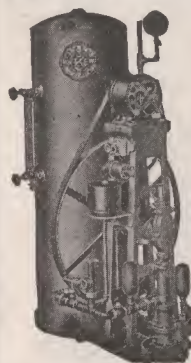
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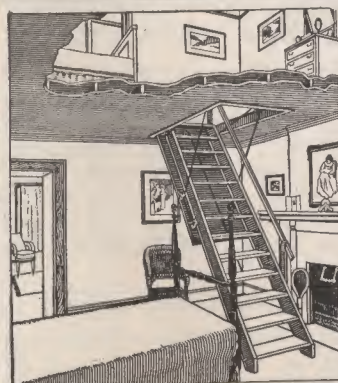
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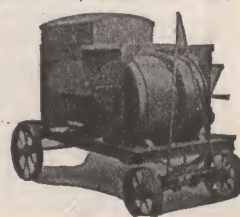
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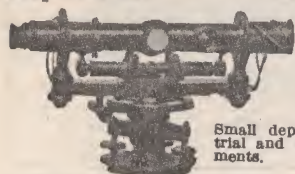


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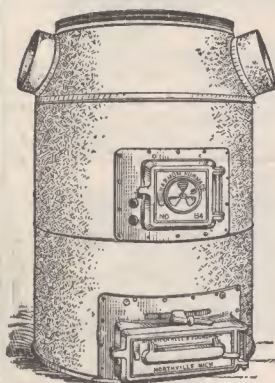
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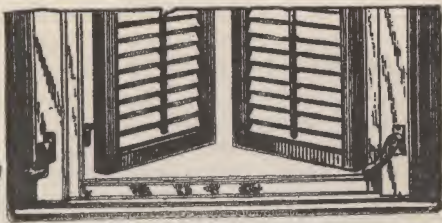
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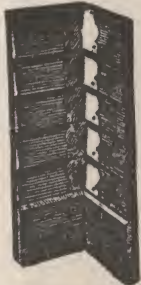
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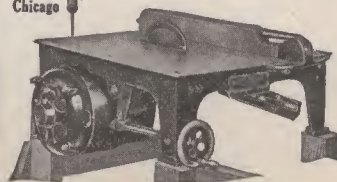
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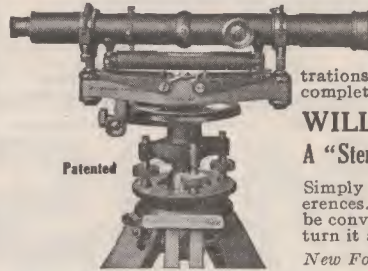
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